

The Electragist

TRADE MARK REG. U.S. PAT. OFFICE

Vol. 26, No. 9

Association of Electragists
INTERNATIONAL

JULY, 1927

Marott Apartment Hotel,
Indianapolis, Indiana.

Wiring in Youngstown-
Buckeye Conduit.

General and Electrical
Contractor: E. G. Spink.

Electrical Engineer: W.
C. Carter, both of Indian-
apolis.



Everywhere You Go — Youngstown-Buckeye Conduit



WHEREVER you go—from coast to coast, in every state in the Union, Youngstown-Buckeye Conduit installations predominate in the more recent and better class of buildings.

"Youngstown-Buckeye" is built up to a high standard, not down to a price. It is used wherever quality of materials and durability of construction mean more to the builder than the doubtful economy of erecting a structure with cheap materials to lower initial cost.

Youngstown-Buckeye Conduit is specified and used by the country's leading architects and electragists.

The Youngstown Sheet & Tube Company
Youngstown, Ohio

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BOSTON—Chamber of Commerce Bldg.
BUFFALO—Liberty Bank Bldg.
CHICAGO—Conway Bldg.
CINCINNATI—Union Trust Bldg.
CLEVELAND—Union Trust Bldg.
DALLAS—Magnolia Bldg.
DENVER—Continental Oil Bldg.
DETROIT—First National Bank Bldg.
KANSAS CITY, MO.—Commerce Bldg.

MINNEAPOLIS—Andrus Bldg.
NEW ORLEANS—Hibernia Bank Bldg.
NEW YORK—30 Church St., Hudson Terminal Bldg.
PHILADELPHIA—Franklin Trust Bldg.
PITTSBURGH—Oliver Bldg.
SAN FRANCISCO—Sharon Bldg.
SEATTLE—Central Bldg.
ST. LOUIS—Mo. State Life Bldg.
YOUNGSTOWN—Stambaugh Bldg.

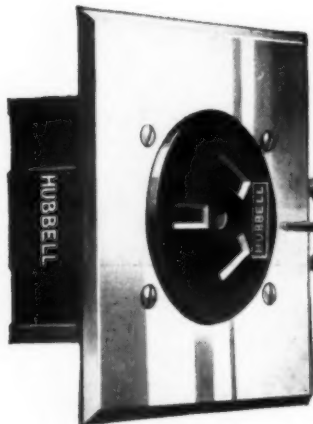
LONDON REPRESENTATIVE—The Youngstown Steel Products Co., 316-17
Dashwood House, Old Broad Street, London, E. C. England.

HUBBELL

20 and 30 Ampere Flush Receptacles



30 Amp.—250 Volts
Two Wire—Polarized
No. 7070 Black Porcelain
Receptacle
No. 7127 "Cord-Grip" Cap
No. 7072 Brass Plate,
.060-in. Metal



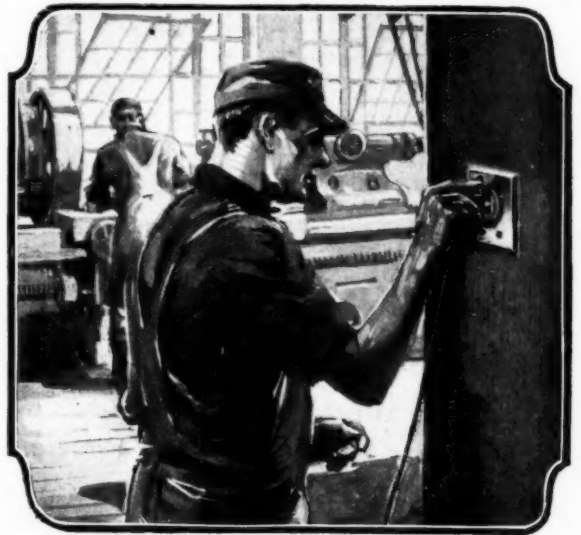
30 Amp.—250 Volts
Three Wire—Polarized
No. 7112 Black Porcelain
Receptacle
No. 7113 "Cord-Grip" Cap
No. 7114 Brass Plate,
.060-in. Metal



20 Amp.—250 Volts
Two Wire—Polarized
No. 5552 Black Porcelain
Receptacle
No. 7058 "Cord-Grip" Cap
No. 5548 Brass Plate,
.060-in. Metal



20 Amp.—250 Volts
Three Wire—Polarized
No. 6810 Porcelain Receptacle
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No. 5548 Brass Plate,
.060-in. Metal



STRONG—built for hard service

These Hubbell 20 and 30 Ampere Flush Receptacles are built to last. There is nothing "dainty" about them. They are strong and rugged throughout.

The receptacles are made of special black porcelain with glazed face. Terminal springs are of heavy phosphor bronze.

The "Cord-Grip" caps are adjustable, accommodating cords of various sizes. They have a heavy "all-over" armor of steel—galvanized to prevent corrosion. Extra-large binding screws. Contact blades of heavy-gauge metal.

Ask your jobber to show you samples. See how well designed and wear-resisting these receptacles are.

HARVEY HUBBELL INC.
ELECTRICAL SPECIALTIES

BRIDGEPORT, CONNECTICUT, U.S.A.
NEW YORK, N.Y. CHICAGO, ILL.



ELECTRICAL SPECIALTIES

The Electragist

(The National Electrical Contractor and The Electrical Contractor-Dealer)

Official Journal of the
Association of Electragists—International

Vol. 26

JULY, 1927

No. 9

Co-operation for Service*

By JOSEPH A. FOWLER

Past President, Association of Electragists, International

AS THE subject assigned to me would imply, there is occasion to discuss the relationship of the National Electric Light Association and the Association of Electragists, International, with regard to their mutual responsibility in the development of certain phases of the electrical industry.

Before we can make any real progress in co-ordinating our resources to such ends we must frankly analyze the situation, clear the atmosphere of misunderstandings and provide a basis upon which we can best work and agree.

When the magnitude of the task of America's electrification impresses itself upon our consciousness it is difficult to conceive that there can be any room for internal differences concerning the part any of us shall play. With so much to be done it is perfectly natural that there should be signs of over-zealousness with an occasional out-cropping of selfishness. How easy it is for us to confuse duty with privilege and obligations with prerogatives.

For a convention speaker such a beginning is not very conventional. The orthodox way is to applaud achievements and extol virtues. Those of us who are close to the light and power industry could not be other than deeply grateful in having a place, be it ever so humble, in the unfolding of an epic unrivaled in the history of American business. Achievements of today become memories tomorrow. Eras of magnitude dawn and glow and are eclipsed by the brilliance of newer developments, each with an added contribution to

man's well being. In the midst of it all those of us who remember the struggling infant back in the "Glorious Nine-



Joseph A. Fowler

ties" will not forget the great pioneers, many of whom are here today. Our tribute to the early pathfinders is one of reverent appreciation for their noble example of heroic service.

Just as you have your heroes so have we ours. Those men worked with tools which by comparison seem crude, but much that we do and a lot that we have is based on conceptions of an earlier era.

The close of the World War marked a revolutionary renaissance in the electrical industry. It was then that we began to lay aside our toys and emerge

into a fuller knowledge of our responsibilities. In the last ten years we have witnessed a decade of progress which overshadows all that has gone before. As we so well know, the presence of several unusual factors had much to do with making this growth possible. The tremendous industrial prosperity of the country created an unprecedented demand for electric service, but the willingness of the public to take a more liberal attitude concerning regulatory legislation enabled the industry to meet the obligation.

Prior to this period the capacity of the average utility to serve was greatly limited. It was not a question of creating new business, but how to service the business offered. Before connections could be made conferences with the power company executives were frequently necessary. In those days adequacy in house wiring comprised the bare lighting necessities with an infrequent decoration such as a switch or other whatnot. Records of innumerable house-wiring campaigns carried on by the power companies give evidence of the fact that convenience outlets were not regarded as important to the needs of the average home. Thousands of such houses now take their place among the inadequately wired residences.

Industry Conference

A very fortunate controversy has arisen between your organization and the Association of Electragists over the question of house-wiring methods. Your committee on wiring told you last year about a shortage of millions of convenience outlets in existing homes and

* Delivered at the National Electric Light Association Convention, Atlantic City, June 9, 1927.

possibly left the impression that electrical contractors were somewhat responsible. The criticism by your committee centered around the thought that house wiring had been restricted because the Association of Electragists had influenced local legislation calling for unnecessarily high standards in wiring methods which brought about higher costs and less wiring. This is neither the time nor the place to argue the question.

The fact that knowledge of the complaint reached the Association of Electragists through public announcement by your committee indicated that the relations between the two associations could not be all that should be desired. If the thinking of our two organizations is at cross purposes the welfare not alone of ourselves, but of the manufacturers and distributors is also affected. We regard the controversy as fortunate in part because many of you have discovered that such an institution as the Association of Electragists exists and has for you a value for good or evil. More particularly the controversy was fortunate because it gave us an excuse to invite your association to take part in an industry conference in an attempt to harmonize our differences and to seek a basis of "Cooperation for Service." The meetings of this conference have been held and conclusions reached. The report of the conference, which is now ready for distribution, will make interesting reading.

Place of the A. E. I.

Prevailing in the industry is an impression that the National Electrical Light Association is sufficient unto itself as far as trade relations are concerned and this feeling is associated with the attitude of many of the member companies. Contractors and dealers should not normally be antagonistic to the central station. Where that is true the service company is usually indifferent or lacks knowledge of the situation.

Approximately 25,000 contractors and dealers are scattered throughout the country. While not more than ten percent of this number are members of the Association of Electragists, we feel that we are the representatives of our classification and must be responsible to a large extent for its educational opportunity. Possibly the greatest problem with which we are faced is the necessity for nationalizing local thinking.

The Association of Electragists has

existed for more than twenty-five years. Throughout its history a conscientious effort has been made to develop and improve the people engaged in the business and the conditions under which they work. Our committees have taken an active part in making the National Electrical code. We have consistently urged standards in methods, materials and workmanship which combine safety and durability along with economy.

Sales Policies

If the utility could think the contractor and dealer an asset instead of a liability the outlook would be brighter. Some central stations are a lot more considerate of their paid salesmen than

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* * * *

Deferred payments without interest are just another form of price cutting.

they are of the contractor-dealer, who is a salesman they do not pay. When they inaugurate a new sales policy they tell their employees about it and endeavor to sell them the idea, but the dealer learns about it only through competition. The favored position of the utility makes possible the marketing of merchandise on terms incompatible with the laws of business economics.

Laniape

Once upon a time there was an old French custom in Louisiana called laniape—children were given a gum drop with every purchase—competition forced rival merchants to continually increase the laniape—a pair of suspenders with a pair of pants—fortunately or unfortunately, depending upon whether you were buyer or seller. This practice was stopped just short of our

getting a pair of pants with each pair of suspenders.

Now the old custom is about to be revived—central stations are giving a pound of coffee with each percolator and a sack of flour with each waffle iron. What will it lead to—an oriental rug with each vacuum cleaner? Surely electrical merchandising is a dignified business. Our pots and pans are useful, practical necessities. Our customers are not children to be laniaped into the purchase of an appliance just to get the gum drops.

The other day one who I thought my friend came with a hard luck story and secured a loan of \$25. When the check was returned I found it endorsed by the power company. Investigation showed that he had used my \$25 to make the first of many payments on an electric range—a make different from those on my showroom floor. With this knowledge all hope of an early return of my loan departed. Why didn't he buy from me? Well, in the first place obviously he couldn't buy a range and borrow the first payment from the same source, and in the second place economic necessity forces me to look upon merchandise in much the same terms as money. When I sell goods on time I must charge for the accommodation just as the money lenders charge me. Deferred payments without interest are just another form of price cutting.

Some Questions

With no intention of being impertinent I will take the liberty of repeating several questions which are being asked and which emphasize the seriousness of the situation.

Has the dealer had a fair chance to do a real selling job?

Is it possible for central station salesmen to sell on commission without misrepresenting the company, its goods, or its competitors?

If the utility makes it impossible for the dealer to market standard products profitably, should he abandon the field or attempt to compete with less dependable products?

Does the Public Relations Section take the contractor and dealer into consideration as a possible asset in building customer good will?

Does the average utility executive care whether or not the contractor-dealer respects and trusts the service company?

St. Louis—August 9-12

If the contractor-dealer fails to measure up to expectations does the power company attach any of the blame to its lack of sympathy and understanding?

Has the central station a moral or legal right to sell merchandise or do inside wiring at less than cost and charge the loss to energy selling expense?

N. E. L. A. Attitude

You must not get the impression that such questions are going unchallenged. The leaders of your organization are tremendously interested in eradicating the causes, fancied or real, which have resulted in such a situation. The fact that I was invited to come here for a frank discussion of the matter is a token of their concern. While the national association may initiate policies it is obvious that member companies must execute them. Investigation has demonstrated that not infrequently the most complacent company is totally unaware of a most distressing lack of proper trade relations.

I know that many of you are thinking that I am talking about my own central station, and not about yours, so I hasten to add that while our conditions are not by any means perfect my fondest wish is that yours could be equally so.

Wiring Inadequacy

Approximately eighteen million homes are within reach of electric service. Of this number sixteen millions are wired. As we now understand the term not more than fifteen percent are adequately wired. The cost of wiring has had very little to do with this unpleasant fact. Most of the poorly wired homes were built and wired when the average house wiring job did not exceed \$25. The true state of affairs is that such wiring constituted just what was sold. Many well known central station executives still live in homes without wiring conveniences, where portable cord has a primary function as current-carrying conductors. Literally thousands of installations are actually made or sold in house wiring campaigns by the central station. The truth of the matter is we sold the only kind of a job we knew anything about. Through the Red Seal and other educational agencies we are selling a better job today and yet another generation may look upon our work as inadequate.

With more than twelve million underwired and badly lighted homes—with

more than a hundred million convenience outlets needed in existing homes—we are faced with a problem of major importance. It does seem as if we have not only a mutual opportunity for a tremendous amount of business, but a real responsibility which should not longer be neglected. Frankly, gentlemen, it is largely your job to sell this market—it is our job to deliver the mer-

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chandise. Undoubtedly a plan fashioned somewhat on the order of the Red Seal idea can be devised and directed through the Society for Electrical Development. Interested manufacturers would gladly give the campaign national publicity and electric league co-operation would insure local impetus. *A goal of one convenience outlet installed per week by each of the twenty-five thousand contractors in existing homes would make a start on the job* and at that rate we could clean the matter up in a hundred years or so. Additional electrical wiring outlets can be installed at small expense in any existing home without damage to the property, but educating the public to this

fact is a real problem. The approach to this job is an undertaking of major importance and should have such consideration.

If we required an excuse for closer trade relations it would seem to lie in the need for handling these problems. For several years our association has maintained a trade policy committee, but in connection with the National Electric Light Association this department has not had a very constructive career. When next I walk under the spell of velvety sky at night time in Dixie when the new moon may be glimpsed over the left shoulder I shall remember to wish that a Trade Policy National Section has been set up by the National Electric Light Association. I shall visualize what a real contribution such recognition would mean to the industry. Then in my imagination I shall witness indifference vanish and prejudice and intolerance fade into a tracery on the morning horizon, outlining the dawn of mutual understanding and helpfulness—the forerunner of true "Co-operation for Service."

Grounding the Frames of Washing Machines

If there happens to be an accidental "short" between a high-tension primary wire and a low-tension secondary a serious or even fatal shock may be received by a person standing on a cement floor in a basement and touching any metal connected to an ungrounded secondary wire. Even if no voltage higher than 110 exists between the ground and the ungrounded wire, or if the floor be wood instead of cement, a shock may be received.

In order to eliminate all possibility of such accidents the Brueckmann Electric Company of Baltimore installs at every outlet designed for a washing machine connection a 3-pole polarized receptacle with one pole connected to a wire which is grounded to the nearest water pipe. The cord leading to the motor is removed and a 3-conductor cord is substituted, one conductor of which is connected to the metal frame of the machine. Thus the machine frame is grounded through the 3-pole plug and receptacle whenever the machine is in use.

Attention to such details as this is one of the practices which build up a contractor's reputation for rendering service of an exceptional type.

St. Louis—August 9-12

TENTATIVE PROGRAM

27th Annual Convention

Association of Electragists, International

ST. LOUIS, MO., AUGUST 8-12, 1927

August 8—Monday

Annual Electragists' Golf Tournament Riverview Club, St. Louis

Four prize events for men and one for ladies.
(Autos will leave Hotel Chase at 9:00 A. M.)
Luncheon may be had at the Club House.

August 9—Tuesday

9:00 A.M. Opening of Manufacturers' Exhibition in Hotel Chase

Visits to St. Louis electrical establishments (manufacturing, jobbing, utilities, etc.) for delegates who register their choice in advance. Time will permit of visiting two plants; cars will leave Hotel Chase at 9:00 A.M., returning in time for luncheon.

Executive Session, A. E. I. Executive Committee

2:30 P.M. Conference of State and Local Representatives Small Ballroom, Hotel Chase

Round-table discussion of problems of local and state secretaries, executive managers and association officers.

7:30 P.M. St. Louis Municipal Opera, Victor Herbert's "Serenade"

Outdoor Municipal Theatre, Forest Park
Leave from Hotel Chase with police escort.

(All delegates invited as guests of St. Louis Electragists and the St. Louis Electrical Board of Trade.)

August 10—Wednesday

10:00 A.M. Opening of the 27th Annual Convention, A.E.I. Convention Hall, Hotel Chase General Subject: "A United Industry"

Addresses by

Clyde L. Chamblin, President,
Association of Electragists, International.

H. T. Sands, President,
National Electric Light Association.

D. Hayes Murphy, Vice-President, Supplies Division,
National Electrical Manufacturers' Association

Albert L. Salt, President,
Graybar Electric Company, New York City.

2:30 P.M. "The Association at Work" Convention Hall, Hotel Chase

Addresses by

E. N. Peak, President,
Iowa Association of Electragists.

C. J. Geisbush, Secretary,
California Electragists.

John Kuhlemeyer, Secretary,
Illinois Chapter, Association of Electragists.

N. J. Biddle, Manager,
Detroit Branch, Association of Electragists.

A. P. Peterson, Manager,
Maryland Division, Association of Electragists.

7:15 P.M. St. Louis Style Show, at the open-air Garden Theatre

Leave from Hotel Chase via open cars. Preceded by ride in county.

(All delegates invited as guests of St. Louis Electragists and the St. Louis Electrical Board of Trade.)

August 11—Thursday

10:00 A.M. "Selling Our Service" Convention Hall, Hotel Chase

Addresses by

W. W. Freeman, President,
Society for Electrical Development.

Earl Whitehorne, Chairman,
Industry Conference on Wiring.

H. H. Courtright, Electragist,
Valley Electrical Supply Co., Fresno, Calif.

2:30 P.M. Open Forum

Convention Hall, Hotel Chase

The Quantity Survey Bureau and Central Estimating

Registration and Licensing Legislation

Electragist Standards for Wiring Installations

Standard Filing for Electrical Contractors

(Discussion of these subjects to be led by men who have been working with the problems.)

4:30 P.M. Meeting of Open Shop and Union Shop Sections

7:30 P.M. Annual Banquet

Harmony Cup Contest

(Cup now held by Lake County Electragists)

Orchestra

Entertainment Features

August 12—Friday

10:00 A.M. Convention Hall, Hotel Chase

Presentation of Past-President's Emblem

Award of 1927 "James H. McGraw Contractor-Dealer Medal"

Organization of A. E. I. Motor Section

Reports of Special Committees

New Business—Suggestions from Members

Resolutions

Adjournment

Industry Leaders to Address Convention

Prominent Men of Four Commercial Branches to Speak on "A United Industry" at the 27th Annual Meeting of Electragists

AS A FITTING climax to its three years of effort to bring the four commercial branches of the electrical industry to a realization of their mutual interdependence and the necessity for working together for a bigger industry, the Association of Electragists, International, is able to announce that the four men who by virtue of their positions are best qualified to speak for their respective branches of the indus-

turers, and Clyde L. Chamblin, president of the Association of Electragists,



Albert L. Salt
President, Graybar Electric Company

International, will present the viewpoint of the contractor-dealer.

It is expected that this session will sound the keynote for the first national commercial program to be engaged in by all branches of the industry.

The national picture of what cooperative effort can do is to be followed the afternoon of the same day by the story of what is now being done locally under the guidance of five Electragist organizations—Iowa, California, Illinois, Detroit and Baltimore. At each of these places the Electragists have taken the lead in bringing about better trade relations and generally, through education, improving conditions. In each case the local picture will be presented by the man who has been the most active in bringing about these better conditions.

W. W. Freeman, president, The Society for Electrical Development; Earl Whitehorne, chairman, Industry Conference on Wiring, and H. H. Court-

right, Valley Electrical Supply Company, Fresno, Cal., are the speakers at a session given over to the general subject, "Selling Our Service," which is scheduled to start at 10 a. m., Thursday, August 11. The afternoon of the same day will be taken up with an open forum dealing with the following subjects: "The Quantity Survey Bureau and Central Estimating," "Registration and Licensing Legislation," "Electragist



D. Hayes Murphy
National Electrical Manufacturers' Association

Standards for Wiring Installations," "Standard Filing for Electrical Contractors."

The presentation of the James H. McGraw contractor-dealer medal will take place at the final session on Friday morning. At this session reports of the special committees will be made, new business taken up and resolutions adopted.

The annual golf tournament will be played over the course of the Riverview Club on Monday, August 8, and the meeting of the association's Executive Committee will be held the morning of Tuesday, August 9.



H. T. Sands
President, National Electric Light Association

try will address the opening session of the twenty-seventh annual convention at St. Louis on August 10.

The subject of this session will be "A United Industry." The central station outlook will be presented by H. T. Sands, Electric Bond and Share Company, New York, recently elected president of the National Electric Light Association; Albert L. Salt, president of the Graybar Electric Company, will speak as a jobber; D. Hayes Murphy, The Wiremold Company, Hartford, Conn., vice president, supply division, National Electrical Manufacturers' Association, will represent the manufac-

Teaching People the Safe Use of Electricity

From a Booth at a Local Fair, Electrical Inspector of Canadian City Points Out Dangers of Carelessness in Home and Factory

IN AN effort to bring home to the people of Victoria, B. C., the right and the wrong way of using electricity, Sydney L. Wilson, wiring inspector of the city, arranged a booth at the recent Home Products Fair that was productive of a great amount of good. The display, which was the result of three months' work, provided such a fund of original ideas that it was the center of attraction during the six days of the exposition. The booth proved, according to Mr. Wilson, that nearly all of the electrical troubles in the average home are the re-

Some interesting revelations came to light in connection with the exhibit. Mr. Wilson states that he found nine out of ten visitors did not know what a fuse was for or what it did. They told him



Six to ten deep, the crowds stood before this booth to listen to Mr. Wilson's plea for safety in the use of electricity

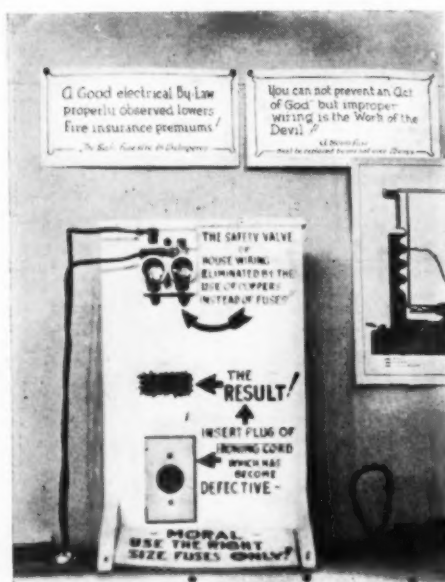
they used tin foil, pennies, rolled up pieces of wire and metal to plug blown fuses, as well as making use of solder and completely rearranging wiring in some cases to bridge the fuse.

Mr. Wilson realized that to do the most good with this exhibit it must be so arranged as to draw the crowd to it and hold them there until he got his message across either by word of mouth or exhibits. One of the magnets was a "magic bowl" in which he placed coins and through which he ran a high-frequency voltage. The coins were kept by the youngsters if they were able to pick them up. He reduced the voltage when a particularly enthusiastic youngster was making an effort to get the coin. The laughs and yells from this section of the exposition was generally sufficient to draw a large crowd.

St. Louis—August 9-12

The "peephole" was another stunt used to attract. This was a small hole through a panel, on the other side of which could be seen overloaded wires glowing red and then white when a defective cord on an ironing board was plugged into a socket on a circuit with its fuse bridged with pennies. Men and women made the experiment for themselves, inserting the plug time and again and watching the results.

Industrial plant owners and men of affairs of the city were attracted by a demonstration of apparatus, loaned by



Two wires glowed red hot when a defective ironing cord was connected through a penny-bridged fuse, providing a graphic lesson to housewives

sult of ignorance, and that people are ready and anxious to learn and profit by their mistakes when they are reached in such an effective manner. During the fair more than 12,000 people visited the booth and received instruction. In addition, a pamphlet was distributed which listed twelve rules for the safe use of electricity. They are printed in connection with this article.



Right and wrong ways of handling electricity were shown on this board. The upper left section showed defective equipment from fire-swept factories and homes

the fire underwriters, taken from a plant where a \$10,000 fire loss had actually taken place as a result of ignorance of the safeguards of electricity. This demonstration showed many types of apparatus, each with its printed message.

Another exhibit showed a two-inch hole blown in metal plate through incorrect wiring. Still another showed the top of a fuse blown off, in which accident the owner of the premises narrowly escaped with his eyesight. Wire from a \$100,000 industrial plant heated to the point where its insulation was destroyed through overloading was another graphic exhibit, as were bits of

dressed to showing "why" and no questions asked were left unanswered.

A display of correct types of wiring was shown on a board. There were also exhibited relics from the '80's in the shape of wooden rosettes, ceiling sockets, inverted fuse blocks and other contrivances which would appear both dangerous and absurd today. Side by side was the modern and safe equivalent

of proper fusing throughout the exhibit, and many signs were erected calling attention to the 15-amp. fuse as being proper. He had drawings made of the fuse in sections, explained how it acted as an automatic switch or a safety valve in the face of danger.

"Men who are prominent in the business affairs of the city," stated Mr. Wilson, "confessed to me that they had been guilty of the most elemental mistakes regarding fuses in their places of business. Some told me that they had used extension cords which have given them 'slight' shocks and which 'would spit fire a little at times.' Women were

ELECTRICITY IS SAFE

—If These Few Simple Rules Are Observed

1—If a fuse blows out, you are either overloading your wiring system, or you have a defective appliance connected to your outlets. The trouble is not corrected by increasing the size of the fuse which is the electrical safety valve. Use not larger than 15 ampere fuses for your house circuits. Never place a metal washer or coin behind the fuse, thereby eliminating all chance of fuse protection.

2—Have all appliance cords repaired or replaced when they become worn or ravelled.

3—Do not attempt to install additional wires in your home. Your best insurance against fire is to have such wiring done properly with the right material by experienced electricians.

4—Wires must not be tacked to walls or baseboards with staples. Connected extension cords hung on nails very often cause serious fires from the weight of the cord after a time pressing the insulation away from the wires and causing a short circuit.

5—Brass-shell sockets in bath rooms and on concrete floors in basements often cause serious injury from electrical shocks.

6—Do not move or handle electrical appliances such as heaters, violet rays, curling irons or washing machines while your body is in contact

with water piping or grounded metal.

7—Always keep electrical heating devices away from combustible materials. Provide an approved metal stand for the iron and use it, whether the current is on or off.

8—Do not leave small children in charge of portable heating devices that are in operation. They may turn them over on your newspaper, curtains or rugs with serious consequences.

9—Lights in clothes closets should never be left burning when the door is closed. The light socket must be well isolated from all inflammable material.

10—Never use irons, toasters or other similar heating devices to warm the bed. There are numerous approved electric heating devices for this purpose.

11—Keep cords to portable lamps in view and away from rockers and the like. You encourage trouble when they are placed under the rugs. If the standard length cord that comes with your device does not reach your present convenience outlet, you need another properly wired outlet placed where you can easily and safely plug in the cord.

12—Never use gasoline in an electric washing machine.

Electricity is your most faithful servant and is safe to use if only such simple precautions are used.

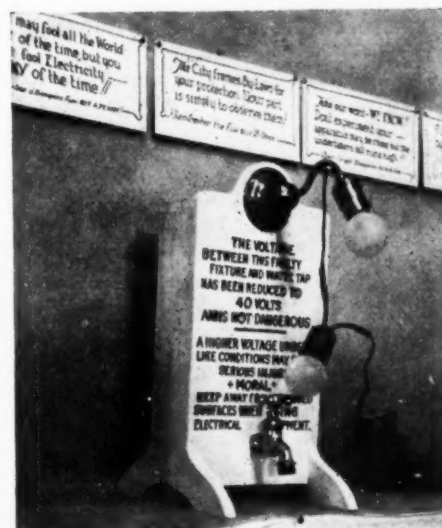
Many thousands of these folders were distributed in the effort to reduce the number of electrical fires and accidents in Victoria

wire from other industrial plants and homes where destructive fires followed similar overloading.

While he showed the danger of misuse, Mr. Wilson also demonstrated the safeguards used for electricity. This phase of the exhibit led by easy stages to the reasons for electrical regulations and explained the reasons for many of the rules. The whole exhibit was ad-

lent, extending even to the extension lamps for garages and basements, with their rubber-covered cords and correct fittings. Porcelain and metal receptacles and other fittings were also shown, each with its particular usage.

Mr. Wilson stressed the importance



Bathroom deaths were easy to understand when one studied this section of the exhibit. The hanging lamp was used to show the connection always existing between grounded surfaces

frank to confess that their ironing cords and other attachments in the home were as bad as the examples of the worn and shorting cords shown at the booth. Many women told me that they had often put their irons down on a stove while connected to the socket, or had rested toasters there or on other grounded surfaces. Many of these housewives came again and again to go through the exhibit, while nearly all said they would have their wiring and appliances looked over by a competent electrical man without a moment's delay."

Some of the visitors complained that a permit had been refused them for a convenience outlet in the bathroom, but when they saw the exhibit of a hazard of this nature and received a slight shock from it they changed their ideas on the subject.

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Contractor Advertising Deluxe

**The Howard P. Foley Company,
Washington, D. C., Distributes an
Especially Handsome Book Among
Architects and General Contractors
to Show the Class of Work it is Capa-
ble of Doing in the Electrification of
All Kinds of Buildings.**



IN ORDER to show general contractors and architects just what type of work it has done and is capable of doing, The Howard P. Foley Company, Inc., electrical engineers and contractors, of Washington, D. C., has published what is perhaps the most elaborate book that has ever been prepared by any electrical contracting organization.

This book, 9 in. by 12 in. and composed of 84 pages, is bound in limp leather and is illustrated throughout with pictures of buildings that have been electrified by the Foley organization. It is printed on heavy, dull coated paper in sepia and represents an unusually fine printing job. The buildings include hotels, hospitals, schools, residences, legations for foreign countries, Government buildings, located in various parts of the East. On each right-hand page

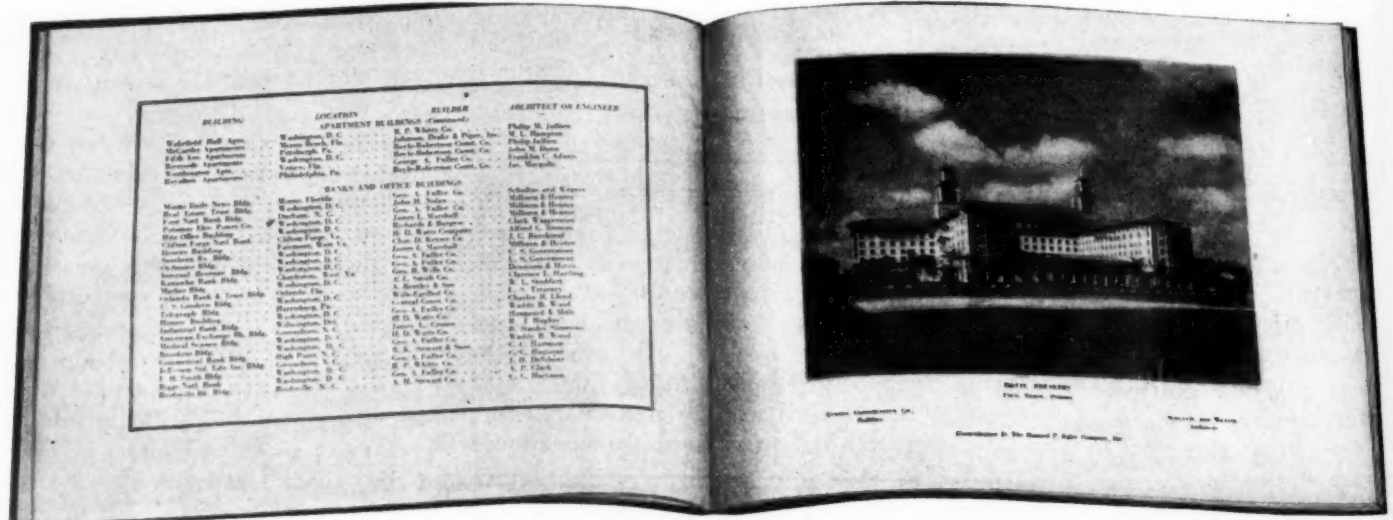
is a picture of some building and on the left-hand pages in the front part of the book are listed, under their proper headings, all of the important buildings that the company has wired.

The president of the company, which is a member of the Electragist Association, Howard P. Foley, says that the idea in publishing the book was to prepare something that could tell better than word of mouth or a pen just what the company has done. "Our object," he says, "was to picture for the general contractors and architects of the East just how we are qualified to carry out any electrification anywhere. We have selected a few of the buildings we have wired as being typical and of sufficient variety to indicate clearly just what our capacities are. The book has been splendidly received everywhere. We

printed 1,500 copies for distribution.

"The price of the work was high, but we thought the result would justify the expenditure, and I think we were correct. An interesting thing in connection with it was the desire of several manufacturers to take advertising space in it. If we had accepted their offer it would have offset much of the cost of the book, but we think it would have detracted from its effectiveness."

The Foley company has another and smaller booklet, 4 in. by 9 in., which is sent out with every estimate to give the architect a ready insight into the capabilities of the Foley company. It lists 100 architects for whom the Foley organization has worked, and they include many of the country's most famous, 40 general contractors, and contains a list of buildings electrified.



This is a typical "spread" of two pages in the book. The illustration is of the Breakers Hotel at Palm Beach, Florida

A Friendly Industry

By CLYDE L. CHAMBLIN

President, Association of Electragists, International

THE first plank in my platform as incoming president was "Friendship within the industry," or as expressed on your program, "A Friendly Industry." I should like for a few moments to apply this idea to the relationship of the contractor and jobber.

There are too many power companies and how are they meeting the situation? By mergers. There are too many manufacturers, with not enough business to go around, and how are they meeting the difficulty? By mergers, and by the survival of the fittest. There are too many jobbers, and I know you will agree with the statement. What is the answer to this problem? It is a case of the survival of the fittest, made fit by being backed by institutions such as yours, or by strong mergers. This is the trend of all modern business, made necessary by the keenest competition in the history of business. Railroads, banks and department stores are meeting competition by the most gigantic combinations in business history. Each one of the three situations mentioned pertaining to the electrical industry is of more importance to the particular branch in question than the other three branches, but now we come to the branch in which all other branches are interested; the last line trench between the industry and the public, the contractor-dealer.

The Contractor

There are too many contractors, probably not too many dealers, but inasmuch as the contracting end of the business is the backbone of the contractor-dealer branch, we will talk only of the contractor. There are too many contractors for the possible available business in each community, and what are we going to do about it? Let me read some late figures on the situation:

In 1921 about 670,000 homes, both old and new, were wired. In 1923 this volume had increased to 1,200,000 homes wired that year. In 1925 we reached the peak of 1,760,000 homes wired in one year. Last year the num-



Clyde L. Chamblin

ber dropped to 1,250,000. This year it will barely reach 1,000,000.

Over 16,000,000 homes have already been wired; only 2,000,000 old houses reached by electricity remain to be wired. But in 1921 there were less than 15,000 contractors; today there are 30,000.

Mergers are not the solution to any great extent, nor is it a problem for the Electragists as a body to solve alone. It is an industry problem and as the link in the distribution chain next to the contractor you as jobbers are most interested in it, as I see it. You want accounts that offer a sufficient volume to be worth while, accounts that appreciate the service you are trying to give, and, above all, accounts that pay their bills when due, and do not ask you to be their bankers. This is your legitimate right as jobbers, but are you getting this class? Are your policies such in your various communities that you attract the better class of trade, and is your personnel in harmony with the trade? Have you salesmen who antagonize rather than win the business through friendly contact?

Some jobber recently said he was dis-

appointed in the support the Electragists were giving the jobber, and that they were buying direct from the manufacturers to a large extent. The Association of Electragists, International, believes in the proper distribution of your merchandise, manufacturer to jobber to contractor-dealer to public, and I will make the assertion that the Electragists of the country support this policy on the average as far as it is practical to do so. None of us is so pure we may cast the first stone, and, therefore, nothing is to be gained by destructive criticism.

I would be bold indeed to state I had a solution to our problems, but I do believe that by sincere, broadminded discussion we may improve the present conditions. I believe the time has come for a more broadminded policy among the leading firms of the industry, and by such policy I mean the losing sight of the immediate order if by so doing the industry as a whole will ultimately benefit.

The Average Contractor

To elaborate still further on this thought: The average contractor, and let me repeat, the AVERAGE contractor, does not create new business. There is just so much normal business that the contractors of the community are splitting among themselves; the more contractors, the less per each. The less business per each, the weaker they become financially, and the less susceptible to ethical standards or cooperative activities. This means that the whole industry all the way back is suffering for a large number of past due, small accounts, coupled with a steady dropping by the wayside, and is certainly not building up a substantial business structure.

On the other hand, in each community you will generally find contractors, and I hope Electragists (there are 2,100 of them in the country), who by proper business methods, technical experience and sufficient capital are a real asset to both the electrical industry and the business community of which they are a part. They stand ready, together with the other branches, to give of their time

* Delivered at the annual meeting of the Westinghouse Agent-Jobbers' Association, Del Monte, Cal., May 27, 1927.

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and money for cooperative activity both with their competitors and the industry at large. And now, gentlemen, I am asking you, do you honestly believe the industry is giving the support to the Electragist, or the contractor who qualifies as such, that it might? Is it up to the 2,100 members of the A. E. I. to finance and carry on a broad field plan to educate the 27,000 other contractors of the country unaided, or is it of just as vital importance to the other branches of the industry to help by every means at their command to make of this great potential selling force real creative educated salesmen?

Let me give you an actual example of what I mean. Only a few weeks ago a contractor, so-called, came to me with this story: He came here from the Middle West, having worked for some contracting firms there in various capacities. He opened a contracting business and is buying his material from a standard jobber. He has been in business about six months and finds he cannot make it go. He freely stated he has no money and was doing his own work, and he wanted to know if I could give him a job. Now that contractor has been taking business in a territory where that particular jobber has some friendly accounts of years standing. This poor, misguided fellow has lost what little money he may have had; he created nothing, but took business from established concerns, lessening by that much their purchases from their jobbers, so who has gained by the whole transaction? Nobody, but rather has the whole set-up been injured that much.

Help the Contractor

The only answer I have to a case of this kind is to do as I know many of you do—take time to frankly discuss the whole situation with that would-be contractor or dealer. Your duty to the industry does not end with finding out his own qualifications, but what are his chances of success in the territory in which he is going. How much available business is there and how is it being served? If you can show him from actual figures what a hazardous chance he is taking perhaps you not only save his small capital, but save demoralizing the business of your customers to that extent. Perhaps you know of a going business he can buy into, and if you have convinced him of your sincere desire to advise him for his own protec-

tion you have made a friend for life.

Now, another thought regarding your relationship to your trade who have established their credit with you, be it large or small. Why is it that you jobbers are continually getting stuck by accounts that perhaps have been on the books for a considerable length of time? It is because your credit men or sales managers are not close enough to your trade. After a customer has cash discounted his bills month in and month out you are lulled to sleep and when he starts to go bad he is at least

"THE first plank in my platform is 'Friendship within the Industry.'"

"The last-line trench between the industry and the public is the contractor-dealer."

"The A. E. I. believes in the proper distribution of merchandise, from manufacturer to jobber to contractor-dealer to the public."

"In every community will be found contractors who are a real asset to the industry and their community business life."

"The sales manager and credit men of the jobbers are not close enough to the trade."

"What would be finer to pass on to those who follow than friendship and confidence and loyalty within the industry?"

"Let us really do a job and not just talk about it."

sixty or ninety days in before you wake up. Then you start trying to work him out, and often it is like getting the back wheels in the sand, for the more they turn the deeper they go. Now, I do not believe the sole job of a sales manager or credit man is at his desk. I believe he should frequently circulate among the trade and personally know the principals of all the firms doing business with his firm. He can get more valuable credit information from the trade than from Dun and Bradstreet. Then the very first time that a customer fails to remit as usual he can drop in as a friend and say "Having a little trouble, old top? Is there not some way we can be of assistance to you?" In ninety-nine cases out of a hundred, if he is tactful, and has established himself on a friendly basis, he will get the whole

story before he leaves, and with such information in hand can help pull the ship back into the stream, not by additional credit that only sinks it deeper, but by a careful study of the cause of the trouble, and a new policy, if necessary, to eliminate it. It may be advisable to cut overhead, or lessen unprofitable volume, the bane of most contractors. By such policies as these you have performed a constructive service to the whole industry, yourselves, your customer, and perhaps your customer's competitor, if the cause of his distress was unethical practice. This is not only your duty, but your absolute right, for the minute you extend credit you become financially interested in that business, and any firm or individual who owes you money and resents your inquiring about it will eventually stick you.

What A. E. I. Does

The A. E. I. is not set up to educate wiremen to become contractors, but to help qualified contractors to become business men, and by business men we mean successful units of our great industry. What I would like to get over is that the large organizations of the industry have to take the lead in a broader view of the distribution problem than has been taken in the past if we are to get anywhere. Every unsuccessful manufacturer, jobber or contractor is a liability to the industry as a whole, and what we want are assets. This is not a problem of individual firm action alone, but of united activity.

You have recently elected a national president, and are to set up a national office with a manager. The reason you are doing this is that you feel the need of a more intensive study of your distribution problems in a big way. The A. E. I. is deeply gratified with this new set-up on your part, for we hope that the executive heads of our national associations will be able to tackle our problems in a more effective way than ever before.

As I have stated before, this is a young industry. Within the span of the lives of the men in this room it has sprung up from an experiment to the greatest influence in modern life. We have not the traditions and customs as have the butcher, baker and candle stick maker to guide us on our way. We of today are building those customs

(Continued on Page 43)

Successful Departmentalization of An Electragist's Business

The John R. Proctor Company, Bayonne, N. J., Keeps
Separate Records of Sales, Prime Costs and Overhead
in Each of Three Departments

ONE of the prime requisites for any business which has two or more income-producing departments is the separation of these departments in the accounting of the business. If this is not done the owners or those in charge are unable to learn whether one or all of the departments are making money or whether they are losing money. If it is done, the facts can be ascertained in short order. Complete keeping of records of each of the departments will not only tell which is making money or which is a losing proposition, but will provide a means for the owners to find out just why such a condition exists.

The business of the electrical contractor-dealer furnishes a splendid example of the type for which such separation is of utmost importance. Much has been said and written that the electrical contractor should not attempt any merchandising of appliances, and the electrical man with a selling sense should confine his attentions to the appliance business alone. One of the reasons, probably, why there are two such opinions is that the average electrical contractor-dealer does not know whether his store is making money or losing money, or whether his contracting business is on the right or wrong side of the ledger. With such separation, on the other hand, he can

GENERAL EXPENSES

YEAR ENDED.....

Shop Supplies and Expenses.....	\$ 583.18
Light, Heat & Power.....	672.25
Stock Room Salaries & Expense..	400.07
Office Salaries	2,641.84
Office Supplies and Expense.....	892.60
Automobile Maintenance	1,404.35
Instrument Repairs	75.68
Interest	4,585.37
Officers' Salaries	8,371.37
Insurance	223.70
Legal Expense	285.92
Dues & Subscriptions.....	61.60
Estimating	53.35
Building Maintenance	221.56
Advertising	286.43
Tool Repairs & Replacement.....	334.10
Shop Superintendence	1,145.45
Miscellaneous	16.06
Contract Work Sales Expense....	180.26
Taxes	771.62
Contract Work Superintendence..	200.73
Contract Work Bad Debts.....	191.15
Sale Discounts	160.69
Gasoline & Oil.....	278.26
Merchandising Delivery Expense	151.29
Shop Work Bad Debts.....	15.40

\$24,124.28

The annual statement of general expenses

tell at a glance just where money is being made or lost, and if the accounts in the separation are kept properly he will be able to see in the event of a loss just where the trouble lies.

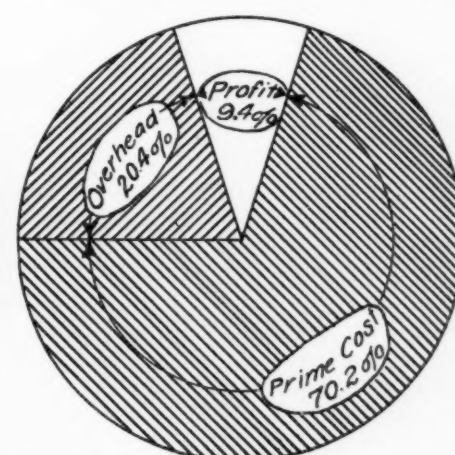
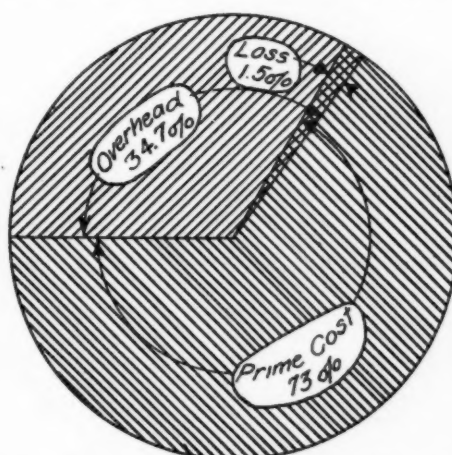
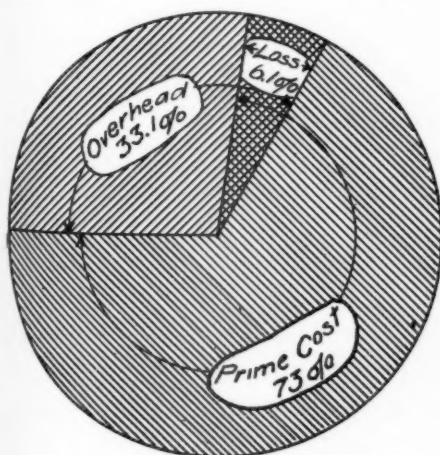
The John R. Proctor Company, Inc., of Bayonne, N. J., has found a way to so segregate overhead that it can be con-

trolled department by department at all times. This particular company specializes in electrical contracting, and in addition considerable business is done in the lamp field and in selling the heavier electrical appliances, motors and the like, on order only. A third department of the business is the shop, where motor rewinding and electrical repairs of a general nature are carried on.

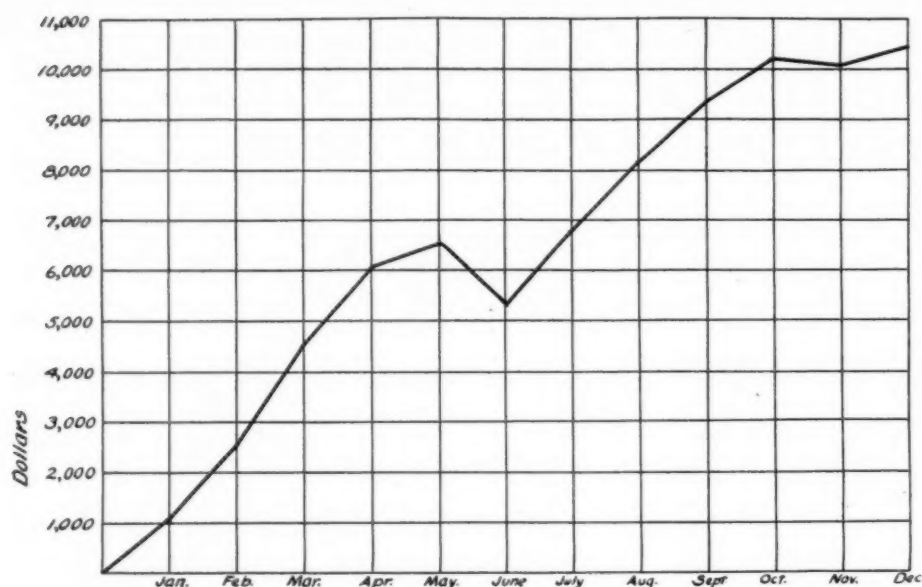
The accounts of the Proctor company are separated into three components: Contracting, shop and merchandising.

Mr. Proctor, Sr., who is head of the organization, has insisted that even more than mere separation be done with the company's accounts. He has the financial activities of each of the departments charted in graphic form. He has insisted upon this because it gives him in a fraction of the time that would be required to read a mass of figures the true state of the business of the organization. On each of these charts, where applicable, the lines indicate the sales, gross profits, costs and overhead. A fourth graph is prepared to show the cumulative net profit fluctuation of the company's business over the entire year. Three of these charts, contract work, shop work and net profit fluctuation are shown in connection with this article.

These graphs, brought up to date, are



The "pie" charts show the company's overhead, prime costs, and profit or loss for three successive years



The cumulative net profit chart gives an immediate insight into the company's money-making ability

placed on Mr. Proctor's desk the first part of each month and he can see at once just what is the state of the different departments of the business. John R. Proctor, Jr., son of the head of the company, has the task of keeping these accounts and the preparation of the charts and figures.

There is also placed on the president's desk a monthly statement showing the overhead charges, by items, costs, sales and net profits of each of the three departments. At the end of the year a yearly operating statement is prepared, as well as one showing the yearly overhead charges and another which carries comparative figures on the overhead charges for three years. This latter is further refined by the preparation of "pie" charts which enable the senior Proctor to see at once how the figures for the year just ended compare as to overhead, profit or loss and costs. Such charts for three successive years are shown here.

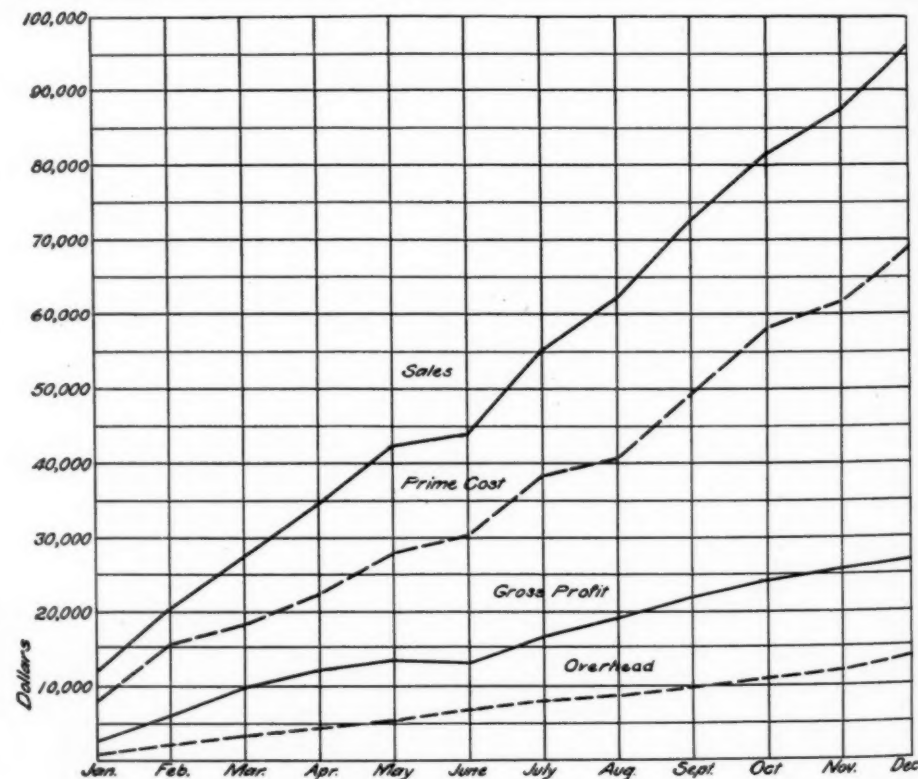
The figures carried in connection with this article are not the true figures of the Proctor company's business and the points on the graphs are likewise untrue, but both have been changed in the same ratio and are a true reflection of the business. These changes have been made for obvious reasons.

Shop Loss Shown

The Proctor accounts have been prepared in this manner for several years. The plotting of graphs was insisted upon by Mr. Proctor as a time saver to him and because at the same time it

gives him a clearer picture of the state of his business than can be conveyed by figures.

An example of the importance of the separation can be seen by referring to the operating statement for the shop of



The sales, prime cost, gross profit and overhead of the company's contracting business are all shown, cumulatively, on this chart

the company and the chart showing the different elements of this activity. For

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some time the shop has been a drain on the company and has shown a steady loss, small in comparison to the size of the business, but nevertheless recorded on the red side of the books. This condition would not come to light if such separation were not maintained and the general financial affairs of the company would be affected while no one could point a finger at the weak spot. With his system, on the other hand, the shop losses show up like a beacon and he knows at once that something is radically wrong there and can take steps to remedy the trouble.

Control of overhead is another important aspect of this method of keeping accounts. The Proctor overhead is run on a budget system, so much gross allowed each month. If any month runs under the allotted figure for overhead, all well and good, but if it runs over steps are taken at once to remedy the trouble. Two of the three pie charts show a bad condition in this respect. The overhead and prime costs for the first two of the three pictured indicate an overhead charge and prime cost

charge so high that they more than offset any profit and put the company in the red for those years. These charts are for the three departments of the business lumped together.

In this particular case the high overhead was due to several high-priced men on the payroll who did not produce as much as they were paid. In the third chart a profit is shown after these men had been taken off the payroll and the overhead charges for their salaries eliminated. Some of the "red," however, is to be charged against the shop.

Examination of the figures will show to what extent the Proctor organization goes in figuring its overhead expenses. In the case of automobile maintenance, for instance, each time a car is used for shop work the driver makes such a notation on his time slip. If he is hauling wire or other material to a job his time and the expense of the car are both entered against contracting and the particular job. If a case of lamps is being carried to a purchaser the merchandising department is affected. The greatest detail and care mark every accounting activity of the organization, and Mr. Proctor, Jr., explains this by saying that to get a true condition of the business such detail is necessary.

It is interesting to follow the pro-

executives of any business which has more than one department.

Some of the overhead expense items can be charged direct to an individual department, but in many cases a lump sum charge such as salaries or rent must be split up and a proper amount charged to each department. The method of making this segregation of each item is entirely a matter of common sense and good judgment. It can never be stated positively that the portion of a certain item allotted to a certain department is correct down to the last cent, but if each expense item is carefully considered errors will tend to balance one another and the total charge to each department will be very nearly correct.

Management Salaries

The essential point to consider in management salaries is the amount of time spent by each of the two executives on matters pertaining to each department. Looking up the total volume of business handled in each department, we find that it is divided thus: Contracting 81 percent, shop 14½ percent,

able time in the contracting part of the business, is eliminated in the other two departments. A direct charge against shop expense is made for time spent by any shop man in estimating the cost of repair work on motors or other apparatus. It was finally decided that a fair division of management salaries is a charge of 90 percent to the contract-

OPERATING STATEMENT

YEAR ENDED.....

Contract Work Sales.....	\$96,003.69
Shop Work Sales.....	17,390.65
Merchandise Sales.....	3,492.46
Lamp Sales.....	2,032.57
Scrap Sales.....	12.54

Total Income from Operations.....	\$118,931.91
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COST OF OPERATIONS

Contract Work Costs.....	\$69,138.94
Shop Work Costs.....	10,178.54
Merchandise Costs.....	2,511.63
Lamp Costs.....	1,729.70

Cost of Operations.....	83,558.81
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Gross Profits from Operations.....	35,373.10
Less General Expenses.....	24,124.28

Profit from Operations.....	11,248.82
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DEPRECIATION CHARGES

Building.....	467.50
Automobiles.....	349.02
Shop Machinery and Fixtures.....	192.84
Shop Tools.....	26.32
Construction Equipment.....	57.47
Furniture & Fixtures.....	79.82
Instruments.....	23.64

Total Depreciation Charges.....	1,196.61
	10,052.21

OTHER INCOME

Rent.....	1,049.14
Interest.....	7.29
Discounts.....	19.53

Total Other Income.....	1,075.96
	11,128.17

OTHER EXPENSES

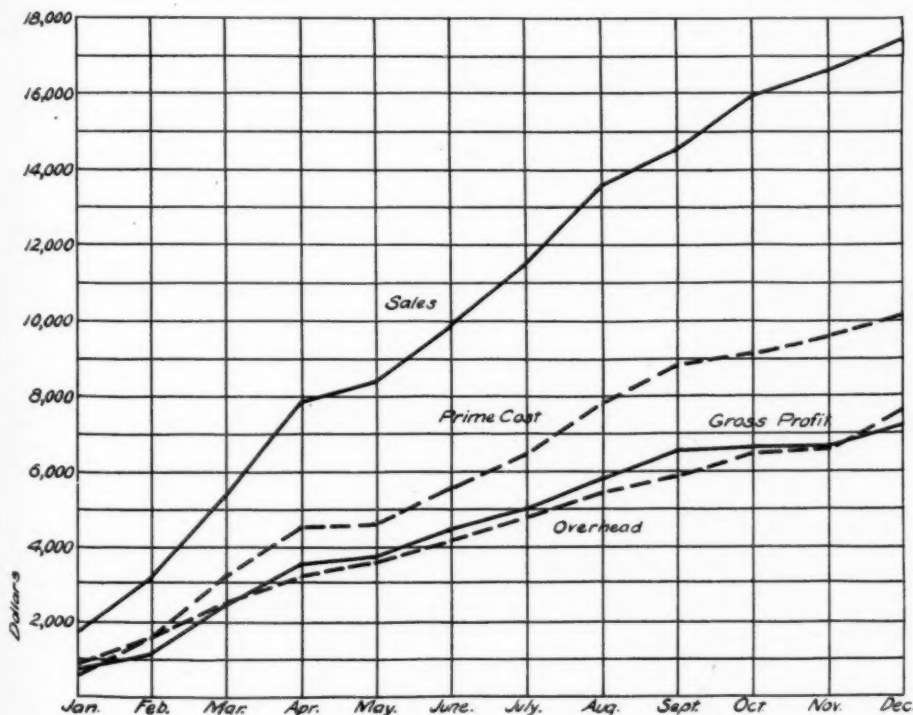
Interest on Company's Subsidiary Notes.....	693.64
Total Other Expenses.....	693.64

Net Profits from Operations.....	\$10,434.53
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Above is the yearly operating statement. Such a table is prepared on a monthly basis as well

ing department, 9 percent to the shop and 1 percent to the merchandise department.

The work covered by office salaries is costing jobs, billing, filing, payroll work and other general office routine. A large part of this work is directly proportional to the number of separate items appearing on the cost records. Shop work jobs average much smaller than construction jobs, and each shop cost record will contain a good many items. Hence the number of shop work items will be much larger in proportion to the amount of business handled than the number of construction work items. There are also a considerable number of items to be handled in connection



Cumulative figures for sales, prime cost, gross profit and overhead in the Proctor shop. Note the loss shown in November

cedure in arriving at these overhead charges.

The result of this painstaking effort is a system which shows the true condition of each of the branches of the business at all times, something which should be available at any time for the

merchandise 4½ percent. However, very little sales effort is put on shop work or merchandise sales, and the item of estimating, which requires consider-

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with merchandise sales and special records to be kept of lamp business. Considering these facts, the distribution finally arrived at was 44 percent to be charged to contracting, 44 percent to shop and 12 percent to merchandise.

Stock room salary (including small items of stock room expense, such as wrapping paper, bags, twine, shipping tags, etc.) is a small item, covering only a small part of one man's time. It is reasonable to make the division here on the basis of the number of items handled, therefore the same percentages are used as in the case of the office salaries, i. e., 44, 44 and 12.

The company owns the building it occupies and makes no charge against the business in the form of rent except the costs of building maintenance and taxes and insurance on the property. This is portioned between the three departments on the basis of the square feet of floor area occupied. This is a fair basis because the premises occupied are not in a location suitable for retail business. The floor space occupied by lamp and other merchandise stock is so small as to be negligible, and the contracting and shop departments divide the total space equally, therefore one-half building maintenance cost is charged to each department.

Light, Heat and Power

Power and gas are used in the shop only, so that this cost is a direct shop charge. The cost of heat is apportioned in the same manner as building maintenance, 50 percent to contracting and 50 percent to the shop, on the basis of the floor space occupied. A fair distribution of the lighting charge may be made by listing the wattage of all lamps in each department and estimating the average hours the lamps are burned. In this case the total lighting bill is small and in order to balance a possible neglect of the merchandise department in distributing other small charges one-third of the cost of lighting is charged to each department.

A general survey of the number of different forms in use, the quantities of each form purchased per year, and the amount of outgoing mail chargeable to each department, leads to the conclusion that only 2 percent of the expense for office supplies (including postage, telegraph and telephone) is incurred on account of the merchandising department and the remainder is equally

divided between contracting and shop.

Sales expense was also chargeable to the contracting department.

Estimating

In the contracting department the estimating charge consists of traveling expense incurred in going out to secure information required in making estimates, and all such items are charged directly to this department. When a price must be given on repairs to a motor or other apparatus a workman is sent out from the shop to secure the necessary information, and his time and expense are charged to estimating shop work. Charges to estimating are therefore all direct charges to either one department or the other.

Such advertising as is done is of a general nature without special reference to any department. Any results from this kind of advertising probably consist of small jobbing orders and motor repair orders and 50 percent of the cost is therefore charged to each of these two departments.

The principal items under taxes are taxes on the real estate owned and occupied by the company, personal property taxes on stock, shop equipment and office furniture and Federal income taxes. The first item is a part of the building expense and is charged in the same way as building maintenance: 50 percent to contracting and 50 percent to the shop.

Returns must be made showing the value of all personal property, which involve an inventory of shop tools and equipment, office equipment and stock. The value of the stock carried is easily divided between the three departments. The tax on the assessed valuation of the shop equipment is of course a charge against the shop alone. The only item is the small tax on the office furniture and equipment which is equally divided between the contracting department and the shop.

The income tax, being a percentage of the net profits of the entire business, is naturally divided between the three departments in proportion to the net profit earned by each.

Fire insurance on the building, being essentially a rental cost, is charged the same as other similar items, 50 percent to contracting and 50 percent to shop.

Insurance on stock, shop equipment and office equipment is distributed in exactly the same manner as the personal property taxes, the ratios here being 45 percent to the contracting department, 52 percent to the shop and 3 percent to the merchandising department.

Dues and Subscriptions

Subscriptions to trade periodicals are in most cases for the benefit of either the contracting department or shop and are so charged. Organization dues are assumed to benefit each department in proportion to the volume of sales in that department and hence are charged in that ratio—83 percent to contracting, 12 percent to the shop and 5 percent to merchandising.

A record is kept of the time the delivery trucks are used by each department, and this record forms a basis for distributing all costs incurred in operating the cars.

Each item of tool repairs and replacement is charged directly to the department for which the expenditure is made.

Miscellaneous expense is a very small item and is charged to the larger departments in approximately the ratio of the sales—85 percent to contracting and 15 percent to shop.

Merchandise delivery, shop supplies and expense, shop superintendence, contract work superintendence, bad debts in the contracting and shop departments, instrument repairs, legal expense and discounts allowed are all direct charges to the departments benefited.

BOOK REVIEWS

"History of the Incandescent Lamp," by John W. Howell and Henry Schroeder, The Maqua Company, Schenectady, N. Y., 208 pages.

The history of the development of the electric lamp is followed from its earliest days to the present time. Chapters are devoted to the development of lighting from prior to Edison's time to today.

"Inventions and Patents, Their Development and Promotion," by Milton Wright, McGraw-Hill Book Company, New York City, 217 pages.

This book contains sound advice for inventors on how to make patents pay. It explains how to secure a patent; how to market a patent; how to raise capital. It discusses the relations of the inventor and his employer, the valuation of patents, advertising and publicity, trade marks, infringement, etc.

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Estimating Methods---II

Labor Cost Units
Divisions of Work
Labor Units in Hours

Labor and Material Costs
Estimated and Actual Figures
Itemized Labor Records

By ARTHUR L. ABBOTT

Technical Director, Association of Electragists, International

ONLY a few of the men doing the estimating today in the contractors' offices have been far-sighted enough to set down their labor cost data on paper; most of them seem to be perfectly satisfied to depend entirely upon their memories in this respect. This is one of the chief reasons why the art of estimating has made so little progress in the electrical construction field.

It is inconceivable that any man who is not a mental freak should be able to retain in his memory a complete set of labor units applying to all the operations and all the varying conditions found in interior wiring; and to carry out any systematic development of this data as a purely mental process is next to impossible. Consequently, the estimator who has no written or printed data has little or no information that is exact and definite, and moreover, he must frequently rely on pure guess work to supply missing items. Actual labor data obtained from the regular job cost records or from special records cannot be used effectively to check indefinite figures which have never been tabulated, hence the estimator is unable to correct his data or develop improved methods.

The facts in the case are brought out in the following bit of fiction:

James Rodgers, estimator for the Dependable Electric Co., Inc., has been satisfying his employers fairly well, but on taking stock of his attainments he finds that he is making little real progress and decides to make an intensive study of his job. Rodgers has worked with the tools and is thoroughly familiar with practical work. For reasons beyond his control he is unable to get the benefit of cooperation with either the trade association or with other local estimators, but must depend entirely on his own efforts.

His first move is to buy a loose-leaf note book and set down therein his labor units applying to all the more

common operations—all sizes of pipe and wire, outlet boxes, etc. He finds that he is in some doubt about a good many of the figures, and for these refers to several of his old estimates. Somewhat to his surprise, when the data is assembled in systematic fashion, some of the figures do not seem to be consistent. Some study is required here, but he finally revises the data so that it appears to be reasonable.

No Data

About this time he begins the estimate of a large job. For a number of the less common operations he finds that his note book contains no data. A search through more old estimates reveals the fact that on some of these operations he has manufactured a labor unit each time he had need of it, thus wasting time, and he has no evidence that any of the figures previously used were right. After taking time to consider the actual work involved in each case, he enters in his book the figures finally arrived at and decides to use these consistently until he has good reason to make a change.

The firm secures this contract and James is commended for having made a good estimate, but having become really interested he begins to question the accuracy of much of his data. He visits the job frequently, talks things over with the foreman and secures his co-operation in keeping records of the labor on certain parts of the work, and makes a few observations himself on some items.

It happens that there were practically no extras on this job, so when the work is finally completed the job cost records provide a very good check against his total estimated labor. The total labor exceeded that estimated by 10 percent.

On those items on which he was able to secure detailed records from his investigations at the job, his estimating data was in some cases nearly right, and in other cases varied as much as 40 percent above or below the actual labor.

Adjusting the Figures

He now proceeds to adjust his original labor units so that they will prove out with the actual records obtained from this job. The question then arises whether he should discard the original data and in the future use the adjusted units, or is there some better way to record the new information he has secured so that it will have a permanent value?

Rodgers has now progressed far enough so that he jumps at no conclusions. On thinking the matter over he concludes that his original data, which was passed on to him by an experienced estimator, must have some foundation in fact; that the job just completed is only one job; and that averages ought to be secured from the records of several jobs before he will be justified in making any great changes.

He therefore lets his first figures stand, but rules off a new column in his book which he heads "Job No. 2034." In this column, opposite each of his original figures, he sets down a percentage indicating the correction needed to make this figure check with the job records. He also makes a note of all conditions on this particular job which might have affected the labor.

Keeping up this plan he soon finds that his labor data is constantly becoming more nearly accurate; he works faster because his data is definite and he has more confidence in it than formerly; he begins to learn that certain conditions have a decided effect on the cost of labor, and finally his estimates are more accurate than they were formerly.

Note that this progress made by James

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Rodgers began on the day when he set down his estimating data on paper, and none of it would have been possible without the tabulation of his data.

Two young men who are skilled mechanics, but without much business experience recently started a contracting business in a district which is locally famous for its fine houses. It is their intention to specialize in the wiring of residences which will range in price from \$25,000 to \$50,000. Being somewhat more intelligent than the average men entering the electrical contracting business, they realized their need of reliable estimating information, and one of their first moves was to seek advice on this subject, which was given about as follows:

Building Up Data

First a job cost record system must be adopted which will give for every job every item of material used and its cost, the hours and cost of labor, and the total cost of labor, material and job expense.

There are three principal divisions of the work of wiring a new house: (1) roughing in the branch circuit work, (2) installing the service, ground, entrance switch, and cutout cabinet, (3) installing switches and receptacles. From the job cost record it is easy to separate all material going into each of these three divisions.

In this particular locality all branch circuit work is armored cable, and the wireman's first work is to complete all the branch circuits down to the basement, leaving a sufficient length of cable at the end of each run to extend to the cutout box. This much of the work is all operation (1) and so the total time is easily recorded.

On the second trip to the job work is done on each of the three divisions; the branch runs are completed to the cutout box, also divisions (2) and (3) are completed. The workmen should be asked to make a separate record on their daily time cards of the hours worked on each division. If they fail to do this they can easily make an approximate separation of the total time if questioned immediately on the completion of the work.

There are several other items on which a separate time record should be kept. One is an underground run to a garage. The time on this work should include digging and filling the trench,

installing the conduit and pulling in the wire. Another special item is a circuit for an oil burner or a refrigerator motor.

Preliminary Data for Starting Records

Approximate figures should first be made up for the cost of each part of the work in order to have a basis for estimating and something to check against when the actual costs are worked out on completed jobs.

For the roughing-in labor we may allow .5 hour per outlet for ordinary work. This is at the rate of 16 outlets per day for one man or 32 outlets per day for two men. This time per outlet should be doubled for each outlet which must be located with great exactness as in panelled work or other ornamentation. For all outlets except 3-way switches about 15 ft. of armored cable will be required per outlet, and of this about 85 percent will be 2-conductor cable and the remaining 15 percent will be 3-conductor. For 3-way switches 8 ft. of 2-wire and 12 ft. of 3-wire cable per switch is a fair average.

The labor for installing single-pole switches and receptacles at convenience outlets may be taken as .25 hour each and .4 hour for each 3-way switch.

With the above data the contractor should make up a complete list of the material required for a light outlet, a convenience outlet, a single-pole switch and a 3-way switch. In each case this will include the cable, outlet box, box connectors, pipe straps, and hanger or box support if used, and the switch or receptacle and plate for such outlets. Pricing each item at his cost and adding the labor at the regular wage scale the complete cost of each kind of outlet is found.

Next the approximate cost must be determined for the three or four types of services which are the most common. We will take as an example a 3-wire No. 8 service running down a line pole and underground to the house, and supplying an 8-circuit panelboard. The ground wire is No. 8 in 1/2-in. conduit. The 1-in. conduit, lead-covered cable and trenching are somewhat expensive, so it is necessary to take into account in every case the exact distance from the pole to the house. A mini-

mum distance of 20 ft. may be assumed, then we can compute the cost of a complete installation on this basis and find an amount to be added for each foot over the 20 ft. distance from pole to house. The principal material items will be about as follows:

50 ft. 1-in. conduit, galv.
1 1-in. elbow
20 ft. 1/2-in. conduit
53 ft. No. 8 3-cond. l. c. cable
30 ft. No. 8 r. c. wire
1 1-in. service cap
1 6-in.x10-in.x5-in. pull-box
1 Meter board
1 Entrance switch
1 8-circuit panelboard and cabinet.

As a preliminary figure for the labor on this part of the job we may take 16 man-hours or 1 day for two men. For each additional foot over the 20 ft. distance from pole to house we must add the cost of 1 ft. of conduit, 1 ft. of cable and the labor. A fair estimate of the labor required on the pipe, cable and trenching is .15 hour per foot.

Underground Runs

An underground run to a garage will require 3/4-in. conduit with two No. 14 single lead-covered wires or a No. 14 duplex, and a special outlet used as a pull-box in the house basement. The conduit run will probably terminate at a switch or receptacle outlet in the garage. We may again make up a figure based on a minimum distance of 20 ft. from the house to the point where the conduit rises to the outlet in the garage. The material will consist of 3/4-in. conduit, No. 14 duplex lead-covered, and one outlet box and cover in the house. The labor on conduit, wire, trenching and splicing in the pull-box for the 20 ft. minimum distance may be assumed as 4.5 hours and the additional labor for each foot of pipe, wire and trench .12 hour.

A special circuit run to an oil burner outlet in the basement will require a length of armored cable which can be determined from the plans. This is standard construction and the labor should be figured at the rate of 2.3 hours per 100 ft. for the cable plus .33 hour for the outlet box.

After all these costs have been carefully worked out they should be systematically tabulated in the form of complete cost of each type of service, complete cost of each kind of outlet, and cost for each special item, and this

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data may then be used for estimating.

For the house-wiring contractor who has been in business too short a time to accumulate any reliable figures as to his overhead expense the general advice is offered that the selling price of a job must be equal to the cost of labor and material plus 50 percent as a minimum. About 55 or 60 percent would be a safer figure to use until both his labor and material costs and his overhead expense are determined accurately. It may not be out of order to add here the further advice that the really successful electrical contractors are those who have built their business on real service rather than on price; that real service to the customer costs something, that is, real service involves a higher overhead and a higher direct job cost than poor service; consequently it is a plain, simple impossibility for the contractor to render real service unless he gets a fair price for his work. This is an economic law which cannot be evaded.

When a job is completed the actual material cost and hours of labor should be worked out from the job cost record and the special labor records for the following items:

- Complete service
- Roughing-in branch circuit work per outlet
- Total per switch and per convenience outlet
- Each special item.

Permanent Records

A permanent record should be made of these figures in such a way that they can be compared with the corresponding preliminary data. It is evident that when 20 or 30 jobs have been studied in this way the contractor will be provided with data which will enable him to estimate almost to a cent what any job ought to cost. He will also have an exceedingly good check on the efficiency of his workmen, inasmuch as he will know almost exactly how much time should be required to complete all or any part of each job. It is hardly necessary to add that these are the conditions most favorable to securing a fair financial return from his business.

Statistics on 1927 wage scales compiled by the Association of Electragists show journeymen electrical workers' wages varying all the way from 60 cents to \$1.62½ per hour.

Not only is there a wide variation in

wage rates between different towns and cities, but the wages in any one locality may change at any time. It is quite evident therefore that labor data stated in terms of dollars and cents is meaningless unless the corresponding rate of wages is given, also that if in this form special data would have to be compiled for almost every city, and complete revision of the figures would be necessary whenever there is any change in wage rates.

Man Hour Basis

The simple way to escape all confusion caused by varying wage scales is to state all labor units in terms of *man-hours*. When the labor on a certain operation is stated as 3 man-hours this of course means the equivalent of one man working for 3 hours. If this is an operation requiring two men the work should be done by the two in 1½ hours.

An Objection

An objection has been raised to the man-hour method of estimating labor on the ground that in nearly all operations two men work together; that if the team is two journeymen the work will be done in less time than if the team is one journeyman and one helper; and therefore the time required to do a certain definite amount of work is not constant but is variable. Also that the higher wages paid to a journeyman will balance the shorter time for the team of two journeymen, so that the cost will be the same in either case, and therefore the dollars-and-cents method is more nearly correct than the man-hour method.

The fallacy in this reasoning lies in assuming that two journeymen will always do more work than a journeyman and a helper.

The real facts are that the productive efficiency of workmen may vary to a considerable extent; whether two men working together exceed or fall short of the average rate of production depends not upon their classification as journeymen or helpers, but upon the individual skill of each man and upon their ability to cooperate. Labor data for estimating should be based on the average efficiency of good mechanics, then the contractor should determine

for himself whether or not the standard data should be modified in order to check with the average rate of production of his own working force.

It should not be necessary to present any argument to prove that any man who makes estimates should make use of all the reliable information on the subject that he can obtain. At the same time no estimating system can be made completely automatic and completely fool-proof; the estimator must use some intelligence in the application of any system and must show some initiative. The sensible and obvious thing to do is to follow a good system and then to check the results against actual job costs in every way possible. In this way the estimator gradually comes to know positively from his own experience whether his methods and his data are producing accurate results or not and is enabled to continually improve.

It is taken for granted that the contractor, as a matter of regular routine, keeps a complete record of the cost of labor and material on every job. This is one of the first essentials in operating a successful contracting business, and without such a cost system efficient estimating is quite impossible. It is always worth while to check the estimate against the general cost records of the job after all work is completed.

(Continued in August Issue)

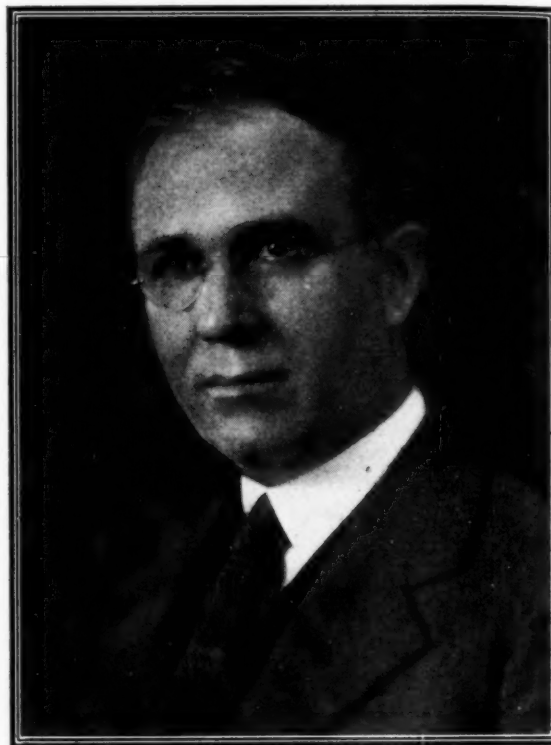
Hold Back Final Payment One Year in England

The method of making payments to electrical contractors in England has recently been the subject of much controversy. One trade paper there says on the subject: "It is, as is well known, a habit of architects to make the electrical installation a sub-contract to the building contract. This is in many ways hard on the contractor. First there is the financial side. The contractor has to be paid by the builder, who, as one correspondent says, may ask to be allowed 2½ percent for keeping him waiting a little longer for his money than he would be called upon to do if he had received payment direct from the purchaser. Payment is normally made on the certificate of the architect on the basis of 80 percent as the work proceeds and a further 10 percent on completion, the remaining 10 percent retention money being withheld for twelve months.

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A. J. Dunbar, St. Louis

ONE OF the most active members of the electrical fraternity in St. Louis, and a member of the Association of Electragists, International, is A. J. Dunbar, whose office is located in the Frisco Building. Mr. Dunbar has been at various times president of the Missouri State Association of Electragists, which post he held for three terms; he was chairman of the St. Louis Electrical Employers' Association for two terms, and later served a two-year term as a member of the executive committee of the St. Louis Electrical Board of Trade. He was born in Hamilton, Ont., Canada, in 1880, and, coming across the border, got his first job at the age of eighteen in Rochester, N. Y., when he went to work for the New York Central Railroad Company in its signal and telegraph department. His first work in the electrical industry proper came when he joined the forces of the Western Electric Company, where he was engaged in the construction and erection of telephone switchboards. He left the Western Electric Company after a while and went with the Bell Telephone Company of Buffalo, where he worked in the underground cable department. His next job was on high-tension work, being employed as a lineman in Canada. Mr. Dunbar has been actively engaged in electrical construction and wiring ever since 1901 except for a four-year period, from 1912 to 1915, when he was with the H. W. Johns-Manville Company, working as a salesman in the lighting division, with headquarters at St. Louis. His present business has been established since 1915, and he is specializing in the installation of lighting fixtures and reflectors in all classes of work.



Electragists You Should Know

Howard P. Foley, Washington



HOWARD P. FOLEY is president of the Howard P. Foley Company, Washington, D. C., which he organized in 1911 and which he has seen grow in a period of sixteen years to one of the largest electrical contracting organizations in this country. When he started the company it was his idea to have an organization that would be able to handle electrical installations of any character or size in any place. The result is an organization, with offices in Washington, New York, Philadelphia, Jacksonville and Miami, which has turned out more than \$25,000,000 of electrical work in many parts of the eastern United States. Included in the buildings electrified by the Foley organization are some of the finest in the country. Mr. Foley came into the electrical industry as a schoolboy, being employed by a concern specializing in burglar alarm installations in large residences. He later served his apprenticeship in the trade as an electrician. In 1907 he secured a position as a junior engineer on the installation of an experimental railroad stop system in Rochester, N. Y., and left that place to return to Washington and organize his own company. Mr. Foley received his early education in the public schools of Washington and later took the electrical engineering course at George Washington University. He has been a member of the Association of Electragists for many years and has been a member of the executive committee of that organization. He played an active part in the development of the Electric League of Washington. He is also a member of the Conference Club of the Electrical Construction Industry, the Electrical Board of Trade of New York, the Congressional Country, Columbia Country and City clubs of Washington.

Chats on the National Electrical Code

A Monthly Discussion of Wiring Practice and Questions of Interpretation,
Presented with a View Toward Encouraging a Better Understanding of the In-
dustry's Most Important Set of Rules

Conducted by F. N. M. SQUIRES
Assistant Chief Inspector, N. Y. Board of Fire Underwriters

Motor Protection

Are fuses necessary between the circuit wires and the motor when the circuit is fused with 15-amp. fuses?

Rule 809a reads "Motors * * * of 2 hp. or less shall be considered as sufficiently protected by the automatic overload protective devices used to protect the conductors of the motor circuits as provided in Section 808."

Therefore, any motor which requires only No. 14 wire and 15-amp. fuses may be protected by the cutout on this circuit and does not require fuses other than those protecting the circuit.

But Rule 809b says that "Each continuous rated motor of over 2 hp. shall be individually protected by fuses or other cutouts."

Then for motors of over 2 hp. each shall have its own cutout.

Motors in Garages

The 1926 supplement to the National Electrical Code has made a change in the requirements for motors in garages.

Formerly motors as well as all outlet boxes, junction boxes, receptacles and switches had to be kept at least 4 ft. above the floor.

Now Rule 3306a reads "Generators or motors which do not actually form part of the vehicle equipment shall be of the totally enclosed type or shall be so located that the unenclosed sparking or arcing parts are at least 2 ft. above the floor. Generators or motors, unless of the totally enclosed type, which are located more than 2 ft. but not more than 4 ft. above the floor, shall be equipped with wire screens of not less than No. 14 mesh, placed over openings at the commutator ends."

In other words, motors in garages when not more than 2 ft. above floor must be of the totally enclosed or explosion-proof type. Motors between 2 ft. and 4 ft. above floor (if not totally enclosed) must have commutator ends covered with screening, but over 4 ft.

above floor may be of the open type.

Attention is called to the above rule because of the wide use of air compressor motors quite generally in garages, many of which are of the open type, though located quite near the floor.

Conduit for Lead-covered Cable

In the Los Angeles district it is the practice of a number of the lighting companies to furnish and install the necessary lead cable for underground services, either from overhead supply lines or from underground conduit systems placed in high class residential tracts.

These companies require that not less than 1½-in. conduit be installed and

not more than two quarter-bends be permitted in the run. When conditions would require more than the two bends cast iron or other approved pull boxes are required. Sheet steel boxes are not permitted.

In view of the fact that the present Code does not contain a conduit table for lead-covered cables we have adopted the table herewith with minor modifications from the Rules and Regulations of the Department of Gas and Electricity of the City of Chicago.

R. H. Manahan.

Sealing Conduits

In the plugging of conduits from underground distribution systems to pre-

SIZE OF CONDUIT FOR THE INSTALLATION OF LEAD COVERED WIRES & CABLES

0-600 Volts			Single Conductors			
Size of Conductor B & S Gauge	Outside Diameter 64th	Dec. Equiv.	Number of Conductors in One Conduit			
			1	2	3	4
			Minimum	Size of conduits in Ins.		
14	18	.281	½	¾	¾	1
12	20	.312	½	¾	1	1
10	23	.359	½	1	1	1¼
8	25	.39	½	1	1¼	1¼
6	30	.47	¾	1¼	1¼	1½
5	32	.50	¾	1¼	1¼	1½
4	33	.51	¾	1¼	1½	2
3	35	.55	¾	1½	1½	2
2	37	.58	1	1½	2	2
1	41	.64	1	2	2	2½
0	44	.68	1	2	2	2½
00	47	.73	1	2	2	2½
000	50	.78	1¼	2	2½	3
0000	54	.84	1¼	2½	2½	3
250,000	62	.97	1¼	3	3	3½
300,000	65	1.01	1½	3	3	3½
350,000	68	1.06	1½	3	3	3½
400,000	71	1.11	1½	3	3½	4
450,000	74	1.15	1½	3	3½	4
500,000	78	1.21	2	3½	3½	4
550,000	86	1.34	2	3½	4	4½
600,000	88	1.37	2	3½	4	4½
650,000	90	1.40	2	4	4	5
700,000	92	1.43	2	4	4	5
750,000	94	1.47	2	4	4	5
800,000	96	1.50	2½	4	4½	5
850,000	99	1.55	2½	4	4½	5
900,000	100	1.56	2½	4	4½	5
950,000	102	1.59	2½	4½	4½	6
1,000,000	105	1.64	2½	4½	4½	6
1,250,000	116	1.81	3	5	5	6
1,500,000	126	1.97	3	6	5	
1,750,000	136	2.12	3	6	6	
2,000,000	142	2.21	3	6	6	

vent entrance of moisture or gases, conduits are required to be first sealed (404-d) with oakum or other suitable filler to prevent the sealing compound required in this rule from running too far down the conduit system and making it difficult and oftentimes impossible to remove conductors for replacement.

R. H. Manahan.

Service Within Buildings

Rule 405-k does not state that service switches be required on wires running from building to building in properties having a generating plant or which are served by a master-service.

In carrying out the intent of the orders of the Industrial Accident Commission of California we will require that when such wires are supplying power to more than one motor in such buildings that an approved switch shall be installed to permit the interruption of current supply.

This requirement is based on the necessity, in case of accident caused by rotating machinery, to stop all motors without loss of time

R. H. Manahan.

Connections to Bell Transformers

Quite frequently a job is found where the contractor, in running the leads to a bell ringing transformer, runs both wires through the same hole of the outlet or junction box. When asked to change this condition he invariably asks "Why?"

In that connection attention is called to Code Rule 701d which states " * * * where wires, other than flexible cord or duplex wire pass through a metal cover, *there shall be provided a separate hole for each wire*, said hole being equipped with a non-combustible, non-absorptive, insulating bushing," and to rule 701n, "At ends of conduit, armored cable or metal raceway from which wires extend to open wiring or to appliances * * * approved terminal fittings *having a separate bushed hole for each wire* shall be provided through which fitting the wires shall pass without splice, joint or tap. This construction shall not be employed at fixture outlets."

This very clearly indicates that the intent of the Code is to run them through separate bushed holes and not through one hole even though, as in the case of a knockout in the side of an

outlet box, there is plenty of room for all the wires.

A very happy solution of this whole problem has recently been solved by some manufacturers mounting the bell-ringing transformer on the cover of a 3-in. round box and so arranged that the 110-volt leads will be enclosed in the box and the low-tension terminals will be on the outside of the cover. But in this connection attention is called to the fact that the Code Rule 701k says that "Metal covers of outlet boxes shall be of thickness equal to that of the wall of the box" and that Rule 701e provides that "Outlet fittings shall be composed of pressed steel not less than 0.078 in. (No. 14 U. S. steel metal gauge) in thickness." Therefore the transformers must be mounted on a cover of at least No. 14 gauge metal.

Sub-Standard

We notice that a manufacturer publishes a pamphlet describing his receptacles for use with non-metallic sheathed cables. The receptacles are listed by the Underwriters' Laboratories as approved, and we consider them very handy and reliable outlet devices, but we regret to see that the manufacturer shows a cut of the receptacles used with baseboard outlets that violates the Code rules for non-metallic sheathed cable. The rules prohibit this class of cable within 6 in. of the floor, and if the cable is used within 5 ft. of the floor it shall be covered with a metal or wooden covering to protect it from mechanical injury.

We also dislike to see the circular state that the users may install them themselves. This is contrary to our city ordinance that requires all electrical construction work to be installed by a certified electrician. Last month we inspected a city of 18,000 population and most of the defects listed applied to additions installed by the users or their employees who were not familiar with safe electrical construction.

George Welman.

Flexible Steel Conduit

Recently the question "Is the use of flexible steel conduit permitted under the Code?" and one argument against the use of it was Rule (1925) 503C. "Finished conduit, as shipped, shall be in 10 ft. lengths * * *." Also, if it was to be permitted, mention of its use

should be in Rule 503, "Conduit Work Under Wiring Methods."

To refute this and to justify the use of flexible steel conduit we mention rule 503B " * * * provided, however, that concealed extensions * * * may be made by means of approved *flexible* or rigid conduit not smaller than 5/16 in. * * *." Also, the 1926 supplement has changed 503c to read "Rigid conduit, as shipped, shall be in 10 ft. lengths, * * *" showing that the necessity was seen to have this requirement only for rigid conduit so as not to exclude flexible conduit from use as the 1925 Rule seemed to do. Further than that the Underwriters' Laboratories list sixteen manufacturers as making approved flexible conduit.

Sidelights on Inspections

The other day we were quite surprised to find an electrical contractor who claimed that he did not know that it was a violation of the Code to leave unused knockouts open in outlet, junction or cutout boxes. And he was one who has been installing work for quite a few years.

But to add insult to our injury when he was asked to remedy the condition he argued that he should be allowed to get way with it because he had never been warned about it or received a notice on it before. His idea of the whole scheme is that a violation is not a violation until he has been caught at it once and allowed to get by with a warning.

And he has a license to install electrical wiring in a licensed city!

And now comes to hand from an eminent and prominent writer on electrical problems some very good advice:

"Inspectors are not a contractors' training school, and they do not give instructions how work is to be done. They are simply to see to it that the rules are not violated. It is a contractor's business to know the rules of the lighting company, the Underwriters and the city departments. That is one of the principal assets he is supposed to have, and one justification for his being in the business. If he does not possess this knowledge he might just as well be in "white goods" or "laces." There is no excuse for being an electrical contractor unless you have this knowledge.

"Get your rules and study them, and don't ask an inspector what you should do." (Eidlitz.)

Quality, the Cure for Existing Ills*

By FRANK A. PATTISON
Consulting Engineer, New York City

AT NEARLY all of the meetings I have attended lately of those in the electrical industry there has been a general query "What is the matter with the electrical business?" There is nothing the matter with the electrical business that is not the matter with all business. There is no better picture of modern business than this description of street traffic: Red light, green light, the shrill cry of whistles, then a surging deluge of cars, thunder—trucks, scuttling taxis, towering buses, all impatient of delay; stealing inches, clipping seconds, shaving corners. There you have the electrical contracting business, the cars are the customers, the thundering trucks are the large contractors, the scuttling taxis are the small contractors, the towering buses are the manufacturers and public utility corporations. A mad rush without any attempt at co-operation and restrained only by the law and police from a complete annihilation of their fellow travelers in the same industry.

My attention was attracted to an advertisement for a certain gasoline. It claimed that it gives:

1. Faster starting
2. Quicker pick-up
3. More power
4. Less gear shifting
5. Reduced knocking.

Possessing these qualities this fuel would help solve the traffic jam I have above described. If this is so the same medicine would help the electrical contracting business, for it is now in the midst of a traffic jam. The fuel which will have the desired effect on the jam in the contracting business is "Quality." Quality injected into this business will give faster starting in following the road to a better day, quicker pick-up of an effort to eliminate the slipshod methods of the day, more power in commanding the situation and attaining the respect of the customer and keeping his

business, less shifting of gears in the vain attempt to meet the tricks of the business, reduced knocking of competitors in the foolish trick of throwing mud in hopes of smearing the other fellow forgetting that a certain amount of the mud always sticks to the thrower.

"Quality" the Cure

The difficulty in our industry is with the men conducting it. There will be no relief from the present jam until the men have learned their lesson and set-

THERE is nothing the matter with the electrical business that is not the matter with all business.

The bane of the electrical business is anything that is "just as good."

Cut-throat competition is the most demoralizing disease that ever attacks an industry.

Price cutting is the result of ignorance of the facts of one's business.

Cheap and flimsy electrical goods do a great deal to impede the use of electricity by the public.

The crying need of the electrical industry is genuine co-operation.

Success in an industry requires constant effort for the benefit of all.

tled down to a sane and reasonable conduct of business. The cure for the existing troubles is "Quality." This is a characteristic applying alike to personnel, business management, labor and materials. It is not necessary to talk about it or advertise it for the very good reason that if it exists it speaks for itself.

One of the fundamentals upon which insurance of "Quality" is attained is the fact that an association of contractors or a labor union only fulfills its proper function when it occupies a position wherein it will vouch for and enforce competent, honest, reliable and dependable actions by each and every one of

its members. In other words, the association or union which seeks selfish interest alone and does not insist upon the delivery to the public of "Quality" is not performing its proper function, and is builded on the sands and is doomed to be washed away in the evolutionary progress of our business life and procedure.

What is "Quality" in electrical contracting? After an active experience of forty years in the electrical industry I am compelled to acknowledge that I cannot write a specification of "Quality" so that the contractors can send out and buy five pounds of "Quality." But I have also learned that everyone in the business recognizes "Quality" in both actions and materials as well as in workmanship as soon as he sees it. "Quality" is a composite of the character of personnel, business management, labor, and materials that insures the result being:

1. Safe.
2. Economical.
3. Efficient.
4. As substantial as the property in which the work is installed.
5. In full compliance with the contract, plans and specification.
6. Durable to the extent that you won't be ashamed to face it years after it has been installed.
7. That it contains nothing in material, workmanship, or business dealings that you need explain or apologize for.

Business Will Be Helped

If our work has these characteristics we need have no fear but that it will pass the Underwriters' inspection. Furthermore we can rest assured that the work will speak for itself and what it says behind our back will be of greater benefit than all the sharp practice, crooked dealing and inferior work of our unscrupulous competitor can overcome in any kind of competition.

It would be foolish for anyone to come before you to preach a sermon, but I would advocate the same thing not

* Delivered at the 28th annual convention of the New York State Association of Electrical Contractors and Dealers, Syracuse, June 13, 1927.

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only on moral grounds, but on the ground that it will bring business and best of all that business will be of a lasting and ever-increasing kind. I do not believe in making a business of one's religion, but I do strongly advocate making your business a part of your religion. When I say religion I do not mean one-day or stated-times performance, but rather that belief and practice which should pervade our every day living and be applicable to all our acts. "Quality" is a characteristic that so pervades the man that it is only natural that it would extend to his business. The matter with our business of today is that everybody has been so busy taking advantage of the many opportunities to make money that no attention has been given to the making of men. Man was not created for business alone. Man's greatest task is to make better men. One thing somewhat lacking in the electrical contracting business in common with all business of today is that we haven't enough men who know how to say "No." When the temptation of apparent present benefit comes in the form of cut in prices, cut in quality, bribe for special privilege, use of substandard materials, unfair treatment of competitors, we haven't the stamina to say NO. Crookedness will not exist, improper work will not be done, unfair methods in competition will not be put over unless there are crooked men to do it.

"Just as Good"

The bane of the electrical business, one thing that tends to pull down "Quality," is anything that is "just as good." You can teach a parrot to say "just as good," but he won't know what he is talking about. But when we tell our customer it is just as good he takes for granted we know what we are talking about and we probably do. But are we so blinded by the prospective profit that the customer is not getting the truth? If so, "Quality" is lacking. But there are lots of cases where we are telling the truth and know what we are talking about, and in these cases "Quality" is present. When money is plentiful there is always a good market for inferior goods. Look around you today and you will find the market flooded with competition materials. Manufacturers seem to have thrown to the winds the good name they have spent years in building up and have yielded to the salesman's plea that he must have some-

thing cheaper to get any business. Volume has taken the place of "Quality." If you want to ruin a barrel of potatoes just slip one bad one into the barrel and they all immediately proceed to get bad. In the same way slip a cheap device upon the market or an unscrupulous contractor into a community and there is immediately a panic and all hands try what? To stamp out the bad one? No; to get bad themselves just as fast as possible and it finally gets so bad that the public if they want a good device or a good contractor they go somewhere else. The result upon the contractor or upon the manufacturer I can only judge by my own experience and that is the manufacturer is kept out of the specification and the contractor is kept off the list of bidders. My experience with competition goods and present competition practices is that they are not competition, but "cut throat." "Quality" is not there. Your wise men say "competition is the life of trade." Yes, but do not lose sight of the fact that this is true only of honest competition. Cut-throat competition is the most demoralizing disease that ever attacks an industry.

Stop Price Cutting

There will be chaos in the electrical contracting business until the contractors learn to make a careful estimate and put in a price at which they will take or leave the job and then stand pat. As long as the present practice exists of putting in a price and then being willing to cut and slash in the face of competition the electrical contractor will be subjected to the action of the unscrupulous owner or general contractor and will be worn out by that pernicious and unfair practice of what is called "dutch auction." Price cutting is the result of ignorance of the facts of one's business or the outcome of a sporting proclivity which has no place in business. What horrible messes are produced by following that inane slogan "business is business." Why is it that a crowd to a man will stand against unfairness in sport and the individuals will leave the game where he has protested and will calmly proceed to put over an equally unfair proposition in business? A study of overhead and the use of the quantity survey will

do much to cure the ignorance, but only a united action of organized business groups will ever stop the trickster.

When money is plentiful there is always a tendency for people to go into business they know nothing about. This is a great detriment to any business, but especially so when the business, like the electrical contracting business, involves dealing with activities requiring technical knowledge and skill. There are a great many people in the electrical contracting business who do not pretend to have any requisite except the necessary money to finance the venture. They have to learn the business and in the meantime through their ignorance they completely demoralize the business in the community in which they operate. The State of New York should say to its citizens, in a law containing full power and means of enforcement and an adequate form of punishment, "You cannot go into any business requiring technical knowledge and skill until you prove to your state that you possess that knowledge and skill." It is not fair to the public or to those engaged in the business to allow anyone simply because he has the money to throw an entire industry into confusion and subject the public to suffering from his mistakes. I do not know whether any of this kind of contractor are in your organization or not, but I do know that there are a number of such in the state and it cannot but have a bad influence. The men themselves may be the finest fellows in the world, but so far as being in a technical business is concerned they are square pegs in round holes.

Substandard Appliances

Although the men in an industry determine its character there are other considerations and one of them is materials. Cheap and flimsy electrical goods sold by drug stores, department stores and fly-by-night electrical shops do a great deal to impede the use of electricity by the public. Often have I gone into factories and homes and found most of the electrical devices burned out and tucked away in the closets. This puts a stigma upon the business in general because the buyers look upon themselves as having been "stung," and in such instances the innocent seem to suffer more than the guilty.

So what is the matter with the electrical contracting business? Nothing is the matter. Ask me another.

Let's look the facts in the face. What

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do our friends and enemies say?

The Association of Electragists, International, says something "is retarding the growth of electrical service, more particularly in the domestic or residence field."

Every other electrical contractor says the bids Jones puts in are absurd. Away below my costs. He is cutting the life out of every job that comes along.

The consulting engineers say if this cut-throat game continues somebody is going to the wall. They further say the greatest part of their time is now spent trying to prevent being "done."

Our Customers

Our customers say there is so much flimsy material on the market that we are afraid to buy. If you want us to use electricity more the rates for current will have to be more attractive. The customer says, "I don't see how you contractors get out alive. Your men don't seem to make any effort to do a day's work. No wonder it costs so much to have electric work done."

The unions ask for union labels on fixtures and look longingly for a five-day week and higher wages.

The manufacturers say we must get the business so we have to make competition goods.

The New York Electrical Board of Trade says certain manufacturers of armored cable have been pulling all sorts of "phony" stuff for the last three years and it's simply got to stop.

The public utilities, the foxy guys, say we are doing our best to serve the people. Our rates are as low as our costs justify.

The Underwriters say they are constantly improving and hope soon to have a Code under which we will all be happy.

The electrical contractor says some of our fellows put in ridiculously low bids and try to put over all kinds of tricks. The unions are a constant menace to us; the consulting engineers are a superfluous growth, the Underwriters are too strict; customers give the job to the lowest bidder regardless of who he is or his kind of work and materials.

And I say these conditions are no different from those in all other business. In a mad rush to get something for nothing and keep up with the Joneses we have thrown the essentials to the winds, and not the least of these is "Quality" in personnel, management,

materials, workmanship and service. The crying need is genuine cooperation. We have too many associations, each run for the special benefit of the few interested. Success in an industry requires constant effort for the benefit of all, not a multiplicity of separated efforts with the one object in common that is to get the money of the public.

In spite of this apparently overwhelming amount of pessimism I still maintain there is nothing the matter in the electrical contracting business that does not exist in all other business. So long as we are human there will be faults, but to me the prospects in this field were never brighter. We are making continuous improvements; we are building upward; we are constructing, not destroying; we are evolving toward success, and as we move along in the procession of life let us continually ponder over the factors of success. These have been well expressed by one who has made a thorough study. He says the determining factors of success are five:

1. Freedom—Overcoming the limitations of self, circumstances and conditions.
2. Action—Doing something, not merely thinking about it, or dreaming of it or desiring it.
3. Leadership—Leading others in doing the work you do, doing it better or more rapidly, or more efficiently or more effectively than others do it.
4. Service—Leading in what you do in such a way as to render service to others.
5. Justice—Securing just compensation for the service you render.

Factors in Every Contract

In listening to my few humble words today please try to divest your mind of the fact that I am a consulting engineer and that in consequence perhaps do not see everything with the correct perspective. I have come here as one interested in the electrical business and with none of that foolish "holier than thou" spirit. I am just as guilty of mistakes as all the rest of you. But perhaps a long experience in the business has enabled me to study the facts longer and under all varieties of conditions. In the mad rush of affairs we often lose sight of the fact

that in every contract we undertake there are three factors, viz: Yourself, your customer and your industry or trade. Every transaction should be undertaken with a full determination to look after the welfare and benefit of all three.

A Friendly Industry

(Continued from page 30)

and traditions for the guidance of those who shall follow, and what would be finer to pass on to them than friendship and confidence and loyalty within the industry? And I mean practical friendship, not selfish and fair weather friendship, not the kind that gives with one hand and takes back with the other. And so as an Electragist let me ask you to give consideration to a policy of building up a more cordial relationship with the responsible, constructive type of contractor within your community. Don't pat him on the back with one hand and with the other encourage a new outlet for your goods in an already overcrowded field. I know you are our friends, but it takes more than words to prove friendship. The various service clubs such as Rotary, Kiwanis, etc., are instilling into business men the fact that acquaintance, friendship, confidence and business follow each other in natural sequence, and the best of these is time, for the longer the time the closer the relationship.

Friendship, Tolerance, Loyalty

Therefore, gentlemen, may we not tackle this job from a broader angle than just the selfish personal angle of immediate gain? May we not collectively, you as representing the constructively thinking jobbers of the country and we Electragists representing the constructively thinking contractors of the country, bend our very best efforts for mutual and industry helpfulness, not just for today, but for the years that shall follow? Let us really do a job, not just talk about it.

"Tain't what you have, but what you give,
Tain't where you are, but how you live,
Tain't what you do, but how you do it,
That makes this life worth living thru it."

And so, gentlemen, I pledge the A. E. I. to a program of friendship, tolerance and loyalty, and ask that we may have your united support to the end that we may mutually serve and mutually profit.

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The Electragist

Official Journal of the
Association of Electragists—International

S. B. WILLIAMS
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The St. Louis Convention

In another month contractors from every part of the United States and Canada will be on their way to St. Louis to the twenty-seventh annual convention of the Association of Electragists, International. These conventions have been growing more popular each year until it is with difficulty that a place large enough can be found to house all of those who wish to attend.

One reason for the growing popularity of these conventions is the frankness with which industry problems and trade relations are discussed. The Electragists decided some time ago that if they were going to get anywhere in satisfactory trade relations they must study underlying causes of dissention and propose, where possible, a remedy.

The big trade problem today is how to unite this electrical industry into a powerful unit that will forge ahead the same in every part. Up to this time the industry has drifted while the several parts somewhat ineffectually tried to stir things up.

It is significant that this great trade policy problem should have its first open discussion by the recognized leaders of the four branches of the industry at the opening session of the convention. At times in the past a manufacturer, a jobber or a central station man would discuss trade relations at the Electragist convention almost always in a critical spirit of contractor methods of doing business.

This year each branch of the industry will be represented and their subject will not be "industry ills" but "A United Industry."

We are on the threshold of a great national co-operative movement to educate the public of North America to an appreciation of the benefits of adequate wiring. The success of this campaign will depend first of all upon how well the four commercial branches of the industry pull together.

The St. Louis convention should sound the keynote of a larger prosperity for all through a united industry.

Sloppy Wiring

Whether it is because of poor mechanics or because the work is taken at a very low figure or what, there is too much sloppy wiring being done in residences. It certainly is not good advertising for a contractor to have the switch

plates in a house at all angles or to have the wiring in the basement hanging in festoons or to have the fixtures hanging on a drunken angle.

It probably does take a few minutes longer to do each thing in a workmanlike manner, but it is doubtful if the contractors who do, or permit their men to do, that class of work are so efficient as to utilize every moment so saved.

This is not something that can be regulated by code, for it in no way affects the quality of service or the safety of the wiring. The only law that has any control over such work is that of pride—if a man has the ability to feel the pride of achievement, the pride of doing a good job, he will not allow sloppy work on his contracts. It takes a real he-man, however, to have that pride. If a man is inclined to do as little as possible, to cheat, to "get away" with things, in other words to have a selfish and small personality there is no way to get him to do a workmanlike job.

New Canadian Code

A Dominion wiring code for Canada is being prepared which, while arranged differently than our National Electrical Code in places follows it in requirement fairly closely, as far as it has gone.

The definition of "approved," however, seemed particularly interesting because the Canadians know what they want and are not afraid to say so. They state very definitely that "approved" means bearing the stamp of approval of certain agencies, which they name.

This is so different from the American practice of "pussy-footing" on this definition. We, on this side of the border, have left this all important definition in such a clouded condition that it is possible for a wiring material to be usable in one city and prohibited in the next. Instead of having one or two central sources of approval, we now have hundreds, virtually none of which is equipped with laboratory apparatus for the purpose of making tests.

The Electrical Committee was disinclined to define "approved" as they knew the field wanted it. They were afraid of some legal or other bugaboo. Instead they "passed the buck" to the chief inspectors who never did and do not now want to be placed in the position of saying what is and what is not satisfactory material.

Let us emulate our Canadian friends and write a sensible definition for the word "approved."

Where is Red Seal Heading?

Is the Red Seal Plan, as it is set up in the United States, operating on the basis which will produce the best results? Will it accomplish the job that was desired by the industry? Do the results warrant the expense? Can the industry be enthused over the plan as now set up sufficiently to go out and do a real selling job?

These questions are being asked more and more, particularly by people who have been actively interested in the plan. Some questions are those of discouraged workers, while others are questions of enthusiasts seeking to find a way to accomplish the big things expected of Red Seal in the beginning.

It is now over two years since the first Red Seal license was granted to a city in the United States. As of June 15 forty-four licenses had been granted, eight of these this year.

Forgetting for a moment those places licensed this year as not having had time to really get going, and taking only the thirty-six places which were licensed during 1925 and 1926 we find some interesting figures. Eleven of these places did not receive a single application for a Red Seal home during the first five months of 1927. Ten others received less than ten applications in that time or less than two a month, while another ten received less than fifty applications in the same five months. Only five places in the United States received more than fifty applications during the first five months of this year. What is the answer?

Only nine places have had a total of one hundred or more applications during all the time they have been operating and all of these places have been licensed a year and a half or more. Do such results warrant continued expenditure of the sums of money so far appropriated?

The contractors have been criticized for their lack of interest in Red Seal. Studies have shown that only a very small percentage of Red Seal houses have been wired by league or association contractors.

Not only is this true but it is a fact that in most places the only Red Seal salesmen are the paid league representatives. The central stations have been almost as passive as the contractors.

As the Red Seal plan is now set up it can never hope to have the enthusiastic support of the contractor. Any contractor may wire a Red Seal house and have it certified. He does not have to belong to any league or association. He may be the worst kind of a price cutting curbstoner, but under the terms of the plan he is entitled to have his work certified provided it measures up to the local specifications. The contractor who believes in association work and who gives of his time and money to further the association idea has no inside track on Red Seal work.

To suggest that this is not right might sound like a selfish viewpoint but we must not forget that the central station profits from every Red Seal job, no matter who does it, and that the jobber members of the league get their share of the material bill.

The bulk of the Red Seal work is probably being done

with the speculative builder. To him Red Seal is an advantage because it is being advertised locally as the best electrical job. The speculative builder who is shrewd takes advantage of this publicity especially when he finds out that by shopping around a little he can get a Red Seal job for only a little more than an ordinary job.

The Red Seal idea of adequacy is a good thing—good for the public and good for the electrical industry. The standards of Red Seal are probably high, but then, what is high today may easily be low five or ten years from now. Besides a certified job of any kind should be one measuring up to a high standard.

Not only that, but it is doubtful if easing up on requirements would speed up Red Seal work. The difference in price between a true Red Seal job and a modified one would not involve enough money to offer any real sales resistance.

It might be that a more flexible specification with emphasis more on the spirit of the plan and less on the letter of the specification would help. Some lighting features, while they may represent the best illuminating practice, are not entirely in accord with popular fancy.

But what of Red Seal? Can it be put over? The Cincinnati league has taken the plan and applied quality to it as well as quantity and has limited it to installation by members in good standing. There the symbol of a first class wiring job is the blue emblem of the league. The progress of the Cincinnati plan will be watched with interest.

At any event we must start to find the answer without further delay. The electrical industry has the reputation for succeeding in what it undertakes. It will succeed in making Red Seal a national slogan. Progress, however, that is more commensurate with the expense involved requires that something be done to waken the industry out of its apathy, particularly the contractors. Without the interest of the better contractors the plan can never hope to find wide use.

Israel Lovett

Again within a short space of time we have to report the passing on of a real friend of the contractor, this time Israel Lovett, city electrician for Omaha, Neb. In his earlier days he was a contractor and when he took up the municipal work he carried with him an understanding of the economic problem of the contractor. This understanding combined with a sympathetic and lovely personality gave to the Omaha contractors a man at the City Hall whom they felt they could not only trust but could go to for help, encouragement and guidance. Mr. Lovett knew good work and insisted on it, and it was one of his boasts that Omaha was from standpoint of safety one of the best wired communities in the United States.

A firm believer in association work Mr. Lovett was constantly, in one way or another, encouraging the local electrical contractors in their association.

His influence will be missed by the Omaha electrical contractors.

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Washington (L)	P. A. Davis	1328 Eye St., N. W.	Niagara Falls (C)	E. M. King	515 Niagara Street
FLORIDA			Rochester (C)	Theo. T. Benz	278 State Street
Bradentown (C)	W. S. Stewart	W. & S. Elec. Co.	Schenectady (C)	Richard Spengler	421 McClellan Street
Daytona Beach (C)	C. Leotah Benson	324½ S. Beach St.	Syracuse (C)	Fred P. Edinger	802 East Water St.
Deland (C)	C. W. Allcorn	132 No. Florida St.	Utica (C)	W. C. Balda	228 Genesee Street
Fort Myers (C)	P. K. Weatherly	Thompson-Weatherly Co.	Westchester Co. (C)...	Jack Lalley	14 Mnr. Hse. Sq., Yonkers
Indian Riv. Dist. (C)...	I. O. Page	Vero Beach	Yonkers (C)	Louis Mayer	485 South Broadway
Jacksonville (C)	W. A. Harper	22 Laura St.	OHIO		
Miami (C)	E. A. Robinson	118 N. W. First Ave.	Akron (C)	E. C. Rishel	540 East Avenue
Orlando (C)	Solon M. Lantz	833 E. Concord	Canton (C)	H. S. Hastings	301 New Vickery Bldg.
St. Petersburg (C)	Gardiner Blackman	P. O. Box 992	Cincinnati (C)	J. F. Riehle	1642 Cedar Ave.
Tampa (C)	P. F. Lyons	73 Walton St.	Cleveland (C)	F. T. Manahan	Chester Twelfth Bldg.
GEORGIA			Columbus (L)	O. A. Robins	1242 Oak Street
Atlanta (C)	B. K. Laney	Byck Electric Co.	Lorain (C)	A. B. Walton	3150 E. Erie Ave.
Savannah (L)	Sylvan M. Byck		Toledo (C)	Fred C. Dunn	Builders' Exchange
ILLINOIS			Dayton (C)	Clarence Carey	1107 South Brown St.
Chicago			Massillon (C)	F. D. Mossop	c-o Mesco Electric Co.
Electrical Contractors' Association	J. W. Collins	230 No. LaSalle St.	Northern Ohio (C)	R. A. Wentz	Elyria
Master Elec. Contractors' Association			OKLAHOMA		
Decatur (C)	F. J. Boyle	304 S. Halsted St.	Pawhuska	C. G. Sego	Pawhuska
Granite City (C)	Earl Weatherford	114 East William St.	OREGON		
Peoria (C)	William W. Huxel	1418 Niedringhaus Ave.	Portland (C)	J. R. Tomlinson	51 Union Ave. N.
Rockford (C)	L. B. Van Nuys	238 So. Jefferson St.	PENNSYLVANIA		
Springfield (C)	Donald Johnson	106 North Second St.	Altoona (C)	Walter Bracken	Leechburg
Wheaton (C)	A. D. Birnbaum	916 West Cook St.	Allegheny Valley	E. G. Jackson	12 West Third Street
INDIANA	E. C. Krage	133 West Front St.	Du Bois (C)	C. E. Blakeslee	11th and French Sts.
Lake County (C)	A. R. Irwin	3461 Mich'n Av., Ind. Har.	Erie (C)	R. D. Goff	1605 N. Third Street
Indianapolis (L)	A. W. Kruege	2405 E. Tenth St.	Lehigh Valley (C)	A. W. Hill	Bethlehem
Michigan City (C)	Walter A. Sassodeck	913 Franklin St.	Philadelphia (C)	M. G. Sellers	1202 Locust Street
Muncie (C)	Harry McCullough	113 W. Howard St.	Pittsburgh (C)	D. A. Fleming	518 Empire Bldg.
South Bend (C)	R. A. Frink	1338 Howard St.	Wilkes-Barre (L)	Ambrose Saricks	25 No. Main Street
Terre Haute (C)	C. N. Chess	523 Ohio St.	RHODE ISLAND		
IOWA			Providence (C)	H. E. Batman	36 Exchange Place
Cedar Rapids (C)	H. E. Neff	94 First Ave., West	SOUTH CAROLINA		
Davenport (C)	Louis F. Cory	510 Brady St.	Charleston (L)	J. P. Connolly	141 Meeting Street
Des Moines (C)	R. C. Trembath	Bankers' Trust Bldg.	SOUTH DAKOTA		
Fort Dodge (C)	J. A. Paul	16 So. Twelfth St.	Sioux Falls	H. W. Claus	326 S. Phillips Ave.
Sioux City (C)	E. A. Arzt	211 Fifth St.	TENNESSEE		
Waterloo (C)	E. A. Cole	Cole Bros. Elec. Co.	Chattanooga (L)	P. W. Curtis	725 Walnut Street
KANSAS			Knoxville (L)	Jerry G. Cason	303 West Church St.
Salina (C)	C. G. Loomis	814 Cedar St.	Memphis (L)	J. J. Brennan	12-16 So. Second St.
Wichita (C)	P. W. Agrelus	Wichita	Nashville (C)	J. T. Shannon	c-o Electric Equip. Co.
KENTUCKY			TEXAS		
Lexington (C)	J. H. Brock	235 East Main St.	Beaumont (C)	J. A. Solleder	Houston & Bolivar Sts.
Louisville (C)	C. L. W. Daubert	921 South Third St.	Dallas (C)	P. B. Seastrunk	2032 Commerce St.
Paducah (L)	K. H. Knapp	c/o Paducah Electric Co.	Houston (C)	J. W. Read	715 Capitol Avenue
LOUISIANA			UTAH		
New Orleans (C)	I. G. Marks	406 Mar. Bk. Bldg.	Ogden	B. Kristofferson	2249 Washington Ave.
Shreveport (C)	R. L. Norton	620 Marshall St.	Salt Lake City (C)	C. Louis Collins	215 Kearns Bldg.
MARYLAND			VIRGINIA		
Baltimore (C)	A. P. Peterson	515 Cathedral St.	Lynchburg (C)	J. L. Fennell	c-o Fennell & App
MASSACHUSETTS			Norfolk (L)	A. W. Cornick	200 Plum St.
Lowell (C)	George A. Ryan	79 Middle St.	Richmond (C)	E. M. Andrews	15 N. Twelfth Street
Haverhill (C)	H. W. Porter	14 West St.	WASHINGTON		
Malden (Medford, Everett and Melrose) (C)...	H. J. Walton	c/o Malden Electric Co.	Seattle (L)	P. L. Hoadley	Seaboard Building
Springfield (C)	C. S. Foster	220 Dwight St.	Spokane (C)	William Stack	W. 1121 Cleveland St.
Worcester (L)	John W. Coghlin	259 Main St.	WEST VIRGINIA		
MICHIGAN			Wheeling	Peter J. Erb	1414 Eoff St.
Detroit (C)	N. J. Biddle	112 Madison Ave.	WISCONSIN		
Grand Rapids (C)	T. J. Haven	1118 Wealthy St., S. E.	Green Bay (C)	V. E. Grebel	531 S. Broadway
Kalamazoo	E. R. Hummel	1121 Seminary St.	Madison (C)	Carl J. Marsh	710 Beaver Bldg.
Saginaw (C)	E. T. Eastman	209 Brewers Arcade	Milwaukee (C)	E. H. Herzberg	1604 Wells Street
MINNESOTA			Racine (C)	Joseph J. Small	1910 Linden Ave.
Duluth (L)	Morris Braden	c-o Minn. Pow'r & Lt. Co.	CANADA		
Minneapolis (C)	W. I. Gray	209 Globe Building	Montreal (C)	George C. L. Brassart	674 Girouard Ave.
MISSOURI			Toronto (C)	J. A. McKay	302 Excelsior Life Bldg.
Kansas City (C)	Walter C. DeBold	City Bank Bldg.	Vancouver (C)	J. C. Reston	579 Howe St.
St. Louis			Winnipeg (C)	Fred Ball	300 Princess St.
Electragists' Ass'n (C)	W. F. Gerstner	120 No. Second St.			
Electric Employers' Association (C)	G. L. Camp	Wainwright Bldg.			

(C) designates exclusively Contractor-Dealer organization.

(L) designates an Electrical League.

JUNE ACTIVITIES

Manahan Resigns as Head of California Inspectors

R. H. Manahan, Los Angeles, has resigned as president of the California Association of Electrical Inspectors and has been succeeded by Harry N. Beecher. Mr. Manahan found himself unable to act as president, to which place he was elected in March, and the executive committee was called upon to choose a successor, Mr. Beecher being elected.

Comstock Attends Economic Conference in Sweden

L. K. Comstock, president of L. K. Comstock & Company, New York, counsellor from the Association of Electragists, International, to the Chamber of Commerce of the United States, sailed last month as a member of the American delegation to the economic conference of the International Chamber of Commerce, held at Stockholm, Sweden, June 27 to July 2.

Owen D. Young, chairman of the board of directors of the General Electric Company, was head of the American delegation.

Maryland Electragists Set Collection Record

The Maryland Division, Association of Electragists, which formed a short time ago a bureau to assist members in the collection of their outstanding accounts, has reported that 66 2/3 percent of the money due its members has been collected and that the bureau is continuing to keep up this percentage in its work.

A special form has been prepared on which members request collection assistance from the association. Space has been arranged for the member to write in the names of his delinquent customers, their addresses, date of bill last sent out, total amount and remarks. The association headquarters staff then undertakes the collection of the account.

The lower half of this form contains a space for the member to report for the information and protection of other

members, names of customers with whom he has had difficulties in the past in the matter of payment of bills. Such information is passed on to members who request it.

Thousands of Rewiring Books Being Distributed

The Copper and Brass Research Association, whose book on rewiring was described in the May issue of THE ELECTRAGIST, reports that over 40,000 copies of the book have been distributed to date. About half of these copies were requested by the electrical industry, the central stations taking the majority. The advertising campaign carried on in more than one hundred cities by the association brought in some 20,000 requests for the book. Another advertising campaign is planned for the

fall, when many more thousands of copies will be sent out to all parts of the country.

Interpretations Committee to Report Findings

The Special Committee on Interpretations of the National Electrical Code, which was recently organized, has received six queries thus far, according to A. R. Small, its chairman. Four of these questions have been decided and it is expected that the fifth will be settled before the middle of July, at which time the findings will be made public in complete reports.

Mr. Small pointed out that considerable correspondence has been necessary in connection with the questions submitted and this has delayed the publication of the results.

New Ordinance Finally Passed at Lorain, Ohio

THE new electrical ordinance of the city of Lorain, Ohio, which was the center of controversy over a long period, has finally been passed by the city council. For nearly a year this piece of legislation has been under discussion among city officials, electrical contractors, representatives of utility companies and others.

At the final hearing on the bill the city solicitor urged without success the insertion of a clause making provision for the creation of a board of appeals, which would be empowered to review rulings of the city electrician.

One of the chief reasons for the long delay in passing the ordinance was due to the effort of the Ohio Public Service Company to secure neutral grounding inside of buildings. The city electrical department is opposed to this practice, but a compromise was effected by inserting a clause in the bill providing that when the neutral is grounded inside a building the expense in connection with the work and all responsibility for any damage that might result will be assumed by the electric utility.

The wording of this clause, contained in Section 31, is as follows: "No neutral grounding of a service wire or wires shall be made inside of buildings unless this grounding is done by the company supplying the current, and said company shall assume all liability for damage to person or property caused by said grounding. The city electrician shall be furnished with a list of each service so grounded. All sheath grounding shall be made outside unless it is impossible to ground sheath outside, then the ground may be made on the street side of the water meter with an approved clamp and the wire soldered to clamp making a good electrical connection."

The passage of the Lorain ordinance marks the culmination of a long-drawn-out controversy which has attracted considerable attention nationally. The city electrical department was backed up in its position throughout the struggle by the A. C. E. Division of Electragists and was opposed by the Ohio Public Service Company and certain outside interests.

Large Attendance at N. Y. State Meeting

More than 150 members of the New York State Association of Electrical Contractors and Dealers and guests attended the twenty-eighth annual convention of the organization at the Hotel Syracuse, Syracuse, N. Y., on June 13 and 14. A varied program was arranged by the committee in charge, of which Harvey N. Smith was chairman.

Following an address of welcome by Mayor Charles G. Hanna, Lawrence Daw spoke on the "Relations between Electrical Contractors and the Underwriters' Association." Laurence W. Davis, general manager of the Association of Electragists, International, next spoke on the topic "The Roads to Markets" outlining the sources of business that are open to the electrical contractor. John P. Haley spoke on farm electrification and Frank A. Pattison read a most inspiring paper entitled "Quality." Joseph C. Forsythe's topic was "The Electrical Inspector and His Place in the Industry."

Previous to the first session there was a sightseeing tour for the ladies through the Finger Lakes region, followed by

luncheon at Skaneateles. A group luncheon for the delegates was held at noon. The banquet was held in the evening, at which Simon Rasch spoke on "Ideals of Business." Following the banquet A. Lincoln Bush, president of the association, was presented with a loving cup, and a traveling bag was given to James F. Burns, the treasurer.

The officers of the association were reelected. They are: A. Lincoln Bush, president; L. R. Rogers, vice president; James F. Burns, treasurer; Herbert F. Janick, secretary.

A business session started the second day's activities, and in the afternoon inspection trips were made through the plants of Pass & Seymour and the Crouse-Hinds Company.

Northwest Inspectors Change Date of Convention

The Northwest Association of Electrical Inspectors, through its executive committee, announces that the date of its next convention has been changed to January 26, 27, 28, 1928. It will be held at the Hotel Olympia, Seattle, Wash.

of the international association at St. Louis.

Underwriters' Specifications to Become Engineering Standards

At a meeting of the Electrical Advisory Committee of the American Engineering Standards Committee, held in New York on June 16, a request was presented by the Underwriters' Laboratories that they be designated as sponsor for the standardization of "specifications and standards for performance and inspection covering fire and casualty hazards for devices and materials employed in installations of electric wiring to which the National Electrical Code and related parts of the National Electrical Safety Code apply."

This means that the Underwriters' Laboratories' specifications for materials and standards for testing materials will be reviewed by a sectional committee of the A. E. S. C. and if approved by the committee they will eventually become American Engineering Standards.

The National Electrical Code and the National Electrical Safety Code are already American Engineering Standards. Both of these codes deal primarily with installation and do not attempt to cover completely the specifications for materials and apparatus as separate and distinct from the methods of installing the materials. At the present time therefore there is a missing link in the chain; there is a standard for methods of installing the materials, but no standard for the materials themselves.

Rewiring Campaign Planned By Colorado League

The Electrical League of Colorado has included a rewiring and a refixturing campaign among its contemplated activities. These include increased activity along commercial and industrial lines, electric home display, better lighting talks before high school students, survey to determine volume of business done by local wiring contractors and by dealers handling radio and electrical merchandise, survey to determine the number of outlets and current consumption in average six-room Denver residence.

Davis Visiting Associations on Pacific Coast

LAURENCE W. DAVIS, general manager of the Association of Electragists, International, left New York on June 24 for a trip lasting six weeks and covering the Pacific Coast Electragist associations from Vancouver to San Diego.

Mr. Davis was scheduled to stop first at Spokane, Wash., on June 28, and at Wenatchee, June 29, arriving at Seattle on June 30, where a meeting of the electrical men has been planned during his stay. On July 2 he will visit the Electragists of Victoria, B. C., and from there go on to Vancouver for July 3 and 4.

Returning from Washington, Mr. Davis will stop at Tacoma on July 6 and Chihalis on July 7, reaching Portland, Ore., July 8. The Portland Association of Electragists, through its secretary, J. R. Tomlinson, has planned a state-wide canvass while Mr. Davis is in Oregon, looking toward the formation of an Oregon state association, and Mr. Davis plans to spend eight days touring

the state, accompanied by Mr. Tomlinson.

The next stop on the schedule is San Francisco, where he expects to join President Clyde L. Chamblin on July 18. State Secretary Geisbush has laid out a two-week schedule covering California. A large meeting of contractor-dealers is planned for July 28. Mr. Davis will also address the San Francisco Electrical Development League on July 25. His stay in California includes according to the tentative schedule, several days with the members of the Southern Division of the California Electragists. This time will be given over to a meeting with the executive committee of the division, a general industry meeting at the Jonathan Club in Los Angeles, and conferences with the motor section, estimators' section and the merchandising committee of the Southern Division.

A large delegation of California Electragists is planning to return East with Mr. Davis for the St. Louis convention

Atlantic City Electragist Opens New Building

The L. L. Jones Company of Atlantic City, N. J., member of the Association of Electragists, International, opened on June 2 what has been called one of the most beautiful electrical stores in the United States. The opening was the occasion of visits from civic and political leaders of the city and a delegation from the Rotary Club, of which L. L. Jones is president.

The store is located in an entirely new building, owned by the Jones company, which has been under construction for several months. The entrance on the ground floor opens on a reception room outfitted with a real fireplace and surrounded by a balcony with a wrought iron railing. Directly in the center of this room an arched hall leads to a grand stairway which runs to the mezzanine and second floors. On the mezzanine is a series of various rooms of the modern residence, in which lighting fixtures, electrical appliances and specialty furniture are displayed. The second floor is given over to more display room, and the first floor also contains a large crystal room for the sale and display of lighting fixtures and general electrical merchandise. The third floor is devoted to shop and warehouse purposes.

The L. L. Jones Company started business in Atlantic City in 1900 at 10 South New York Avenue. They remained there for seven years, when they took larger quarters at 1019 Atlantic Avenue, which were occupied until the latest move to their own building. L. L. Jones is president of the company, H. L. Boston is secretary-treasurer, Mrs. L. E. Jones is vice president and Alfred A. Jones is assistant secretary-treasurer.

Denver Contractors Elect Officers

At the annual meeting of the Denver Electrical Contractors' Association, held recently, C. N. Shannon was elected president; W. R. F. Kaffer, vice president; E. C. Headrick, secretary-treasurer. These men with P. Harry Byrne and W. A. J. Guscott comprise the board of directors.

It is reported that the association is planning a number of activities that will result in improved fraternal and business relations in the contractor group during the coming year.

Baltimore's First Home Electric Opened

The first home electric exhibit held in Baltimore was opened under the auspices of the Maryland Division, Association of Electragists, International, on



Baltimore's First Home Electric

Sponsored by
MARYLAND DIVISION
Association of Electragists
INTERNATIONAL

June 16. In connection with the exhibit a folder was prepared, which is illustrated herewith, giving the reasons for adequate wiring and the advantages to be derived from proper lighting fixtures and household appliances. The Briggs cartoon "More Light and Power to You," which has been used in connection with the advertising of the Copper and Brass Research Association's campaign for rewiring, occupies a full page. The back cover contains a list of the members of the Maryland Electragists.

S. E. D. Directors Meet at Atlantic City

At the first meeting of the reorganized board of directors of the Society for Electrical Development, held June 6 at Atlantic City, a special committee was appointed to consider the matters of future activities, functions and official and staff personnel of the society. The members of this committee are H. T. Sands, president of the National Electric Light Association; Gerard Swope, president of the National Electrical Manufacturers' Association; George E. Cullinan, chairman of the executive committee of the Electrical Supply Job-

bers' Association; James R. Strong, representing Clyde L. Chamblin, president of the Association of Electragists, International; J. E. North, chairman of the League Council, and Earl Whitehorne, at large.

At the meeting the new directors took office and H. T. Sands, president of the N. E. L. A., was appointed to succeed R. F. Pack, past president.

Safety Conference Ends Its Work

The Electrical Safety Conference, at its regular quarterly meeting held in New York City on June 15, reviewed its activities and decided to dissolve. This decision was based on the conclusion that the mission of the conference has been accomplished and the work it has been doing is no longer necessary under present conditions and with the availability of other standards-making machinery.

May Hold Electric Show in Syracuse

The entertainment council of the Syracuse Electric League has under consideration an electric show to be held this fall. The present plan is to make it a combination show with radio.

It is announced by the league that out of the 1,532 invitations sent out for its modern appliance home exhibit, which was held recently, a total of 1,054 visited the house.

A. C. E. Division Plans to Meet With Jobbers

The A. C. E. Division of Electragists has been making efforts to hold a conference with the jobbers in Northern Ohio to make an attempt to straighten out some of the difficulties now existing between these two branches of the industry in that section. It has been proposed to hold this meeting in Cleveland at some future date that will be mutually satisfactory.

S. A. Chase Presented With Gold Watch

At the recent convention of the Westinghouse Agent-Jobbers' Association, Samuel Adams Chase, special representative of the Westinghouse Electric & Manufacturing Company, was presented with a gold watch "as a token of appreciation and love." The watch had

the following inscription: "To Samuel Adams Chase, the Original Jobbers' Friend, W. A.-J. A., Del Monte, Cal., May 23-28, 1927."

Rewiring Booklet Issued by Pittsburgh League

The Electric League of Pittsburgh has prepared a particularly effective booklet for distribution to purchasers of old houses in an effort to sell them on rewiring and refixturing. "We're Putting in Electric Lights" is the subject title on the front cover. The inside is taken up with a letter from Manager Van Aernam, urging that the wiring of the house be raised to modern standards, and an explanation of the value of convenience outlets. The Briggs cartoon, "More Power and Light to You," is included, and also a brief note explaining what the Electric League of Pittsburgh is and what it is trying to do.

These booklets are mailed each morning to all persons whose names are recorded in the newspapers as having purchased houses. As is generally the case, the new owner decides on new decorating and alterations so the league, recognizing that it may be overlooked, has brought to the attention of the buyer the importance of looking after the electrical work as well.

Laube at Rotary Meeting at Ostend

G. Fred Laube of the Laube Electric Corporation, Rochester, N. Y., a prominent member of the Association of Electragists, International, and Mrs. Laube attended with other members of the Rochester Rotary the meeting of the international organization at Ostend, Belgium, last month. Their plans are to visit, in addition, France, England, Germany and Czecho-Slovakia.

Contractor Advertising Subject at League Meeting

Direct mail advertising as applied to the contractor-dealer was the subject of a talk given by E. J. Hegarty of the Westinghouse Electric and Manufacturing Company at the dinner meeting of the Hudson Valley Electrical League, held on June 2 at Rhinebeck, N. Y.

The speaker pointed out that every dealer should advertise in this way to his advantage, and suggested that a stenographer in her spare moments could

prepare letters for this purpose and that manufacturers would render every assistance possible. Mr. Hegarty also urged the dealers to tie-in their advertising with the appliance advertising of the central station and stated that when this is done about 60 percent of the business resulting will accrue to the dealer.

Another important discussion at the meeting was the subject of licenses at Poughkeepsie. In Kingston and Newburgh licenses are necessary before a contractor is permitted to go into business, but Poughkeepsie has no such ordinance. Nothing definite was decided upon at the meeting, but it is expected that the subject will be opened again.

The annual outing of the league will be held on July 16 at Kingston.

RED SEAL NOTES

New Specifications of Hudson Valley in Effect

The Hudson Valley Electrical League's new Red Seal specifications went into effect on July 1.

The changes made in the living room and library specify that if the ceiling outlet is capped over four wall light outlets must be provided, at least one of which will be controlled by a switch. Another change provides for a pilot light at the head of the cellar stairs or other conspicuous place.

Detroit Adds Man

Despite the falling off in building in Detroit during May, the league there has experienced such a demand for Red Seal that it has been necessary to employ another field man to handle the added business.

May Shows Gain

The consolidated Red Seal progress report, issued by The Society for Electrical Development, indicates a total of 352 applications received for Red Seal homes during the month of May. This brings the year's total, including May, up to 1,187. Awards made during the month reached 132, while the year's awards are 681. The first five months of 1927 show that 1,868 applications and awards have been made for this period, while for the entire year of 1926 there was a total of 2,698.

The high record for the month was in Detroit, where 96 applications were re-

ceived and 35 awards made. Washington registered 61 applications and 2 awards, and Pittsburgh 31 applications and 19 awards.

License No. 80 Issued by the Society

The Calumet Electric League, Indiana Harbor, Ind., has received its license and is now operating the Red Seal plan in Lake and Porter Counties, Indiana, where a good start has been reported. This license makes a total of 80 issued for Red Seal.

Pittsburgh League First to Pass 500 Mark

The Electric League of Pittsburgh has more than 500 Red Seal homes to its credit and is the first of the operating leagues to reach this mark. This figure includes both finished and pending jobs.

League Warns Against Use of Unapproved Devices

The advisory board of the Electrical League of Colorado has again gone on record as being opposed to the use of utility taps and improvised convenience outlets which have not been approved by the Underwriters or the local inspection department. At a recent meeting this matter was given serious consideration and it was brought out that the use of such devices is opposed to the standards of better wiring recommended by the industry, and that the installation of such equipment is inefficient and dangerous for the customer.

Making Progress on New Canadian Code

The Canadian Engineering Standards Association, which is in form of organization and purpose very similar to the American Engineering Standards Committee, has been engaged for some time in drafting a Canadian Electrical Code. Proofs of the proposed rules have been sent to the local committees which are cooperating with the main committee. This code when adopted will have a status much the same as that of the National Electrical Code in the United States, that is, it will merely be a recognized standard which may be adopted or not by any municipality or province as it may decide.

An important and commendable dif-

ference between the Canadian Code in its tentative form and the N. E. C. is the increased number and more definite character of the definitions. The definition of the term "approved" is of special interest. This term is stated to mean, as applied to equipment (including all materials), that such equipment has been formally approved by the Underwriters' Laboratories, the Ontario Hydro-Electric Laboratory, or a recognized Canadian Government laboratory. The corresponding definition in the N. E. C. is "Acceptable to the Inspection Department having jurisdiction." A number of definitions are included in this section which in the N. E. C. are scattered through the book.

The rules in general follow the requirements of the N. E. C. quite closely, though in most cases the N. E. C. wording has not been adhered to. In a number of cases the wording and arrangement seem to make the rules considerably more clear, definite and easier to grasp than the N. E. C. rules, as, for example, the section on Services and Grounding. The user of the rules will like the division of the latter section under two headings, "What to Ground" and "How to Ground."

The new section on Underfloor Raceways in the 1926 Supplement to the N. E. C. is followed verbatim. Requirements are stated for the use of non-metallic sheathed cable which are substantially the same as in the 1926 Supplement. The lighting branch circuit loading limits are the same as those of the N. E. C.

With a few exceptions of minor importance specifications for materials are confined to statements of the types required for use under certain specific conditions. Instead of stating the requirements applying to materials and apparatus, it is merely stated that all electrical equipment shall be approved. Referring to the definition of the term "approved" as given above, it will be seen that specifications for materials are left to the recognized laboratories.

Section 1 corresponds to Article 1 of the N. E. C., the subject being Definitions. Section 2 contains various rules in regard to permits and inspection. Section 3 is missing and possibly will cover pole lines. Sections 4, 5 and 6 correspond to Articles 4, 5 and 6 of the N. E. C., the subjects being Services, Wiring Methods and Conductors. The next nine sections give rules for special

occupancy and service, such as theaters, garages, sign work, etc. These are followed by a section on Protective and Control Equipment and a section headed Installation of Electrical Equipment. This latter section is a new grouping of rules applying to installation of rotating machinery, transformers, switchboards, storage batteries, fixtures, arc lamps, etc. The remaining sections cover High Potential Installations, Small Isolated Plants, Radio and Grounding, with a final section on Maintenance and Operation of electrical equipment.

OBITUARIES

Percy Foster

Percy Foster, treasurer of the Foster Electric Company, contractor, West Allis, Wis., died recently at his home of pneumonia. He came to West Allis seven years ago from Stanley, Wis., and had been in the electrical business in the former town since that time.

Israel Lovett

Israel Lovett, city electrician of Omaha, Neb., and an associate member of the Association of Electragists, International, died suddenly at his home on May 26 following a stroke of paralysis. He had been at his office all during



the day, apparently in good health, and his death came as a shock to the electrical industry in Omaha and to those who

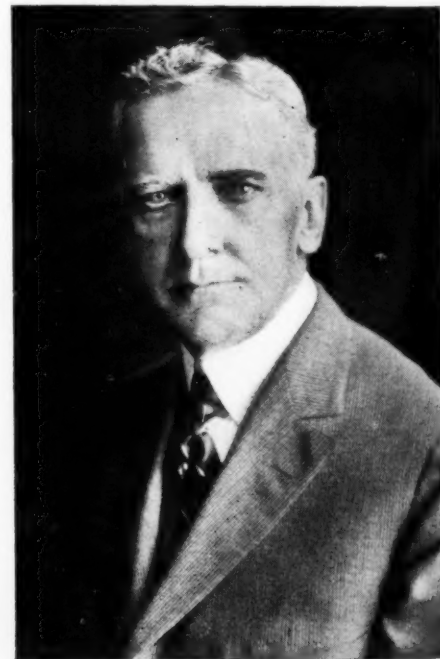
knew him. Mr. Lovett served for nine years as city electrician and was recognized for his work in making Omaha electrically safe. He was an ardent student of the progress of the art of electrical application.

Previous to becoming city electrician, Mr. Lovett was engaged in the electrical contracting business in Council Bluffs, Iowa, and Omaha. He was a member of the National Electric Light Association, Western Association of Electrical Inspectors, Engineers Club Omaha, and was an active figure in the organization of the Omaha Electrical League. In his youth he worked as an assistant in the laboratory of Alexander Graham Bell, inventor of the telephone.

Mr. Lovett is survived by his widow, one son, Prof. R. H. Lovett, of the electrical engineering department of the Missouri School of Mines; a brother and two sisters.

Guy E. Tripp

Gen. Guy E. Tripp, chairman of the board of directors of the Westinghouse Electric and Manufacturing Company, died on June 14 in New York City, after a long illness.



Gen. Tripp was born in Wells, Me., April 22, 1865, and, after working in a grocery store and for the Eastern Railway Company, in 1890 became storekeeper for the Thomson-Houston Electric Company, which was then electrifying the West End Railway in Boston. Seven years later he joined Stone &

Webster and rose to the vice presidency of the Stone & Webster Management Association and the Stone & Webster Engineering Corporation. He was elected in January, 1912, to the chairmanship of the Westinghouse board of directors to fill the vacancy caused by the death of Robert Mather.

During the World War he was selected by the War Department to solve the problem of the efficient purchase of \$16,000,000 worth of war material, and as chief of the production division of the Ordnance Department he reorganized the method of purchasing and ac-

complished this task with such conspicuous success that he was awarded the Distinguished Service Medal.

During the last few years Gen. Tripp has been particularly concerned with the future electrical development of this country. Convinced by his wartime experience that power is an essential factor in our prosperity, he made an exhaustive study of the situation in the United States with regard to the generation and distribution of power. His plan for the electrification of the United States has been called the greatest electrical project ever definitely proposed.

News Notes Concerning Contractor-Dealers

Bennett Electrical Company has opened a store at 123 North Main Street, Wilkes-Barre, Pa. A complete line of lighting fixtures and electrical appliances will be carried.

More than 1,000 people visited the store of the Hays Electric Company, Main Street, Celina, Ohio, when it opened recently. It is located in Wyck-off Block and is modern and up to date in every particular.

Myers Electric Company, Lowell, Mass., has moved from its location at 5 Pearl Street to 254 Middlesex Street. A more complete line of lighting fixtures and household appliances will be carried at the new store.

Coast Electric and Machine Company, 45 Market Street, Venice, Cal., has opened a branch store at 1122 Washington Boulevard. A complete line of household appliances is carried and a repair department is maintained.

A. & A. Electric Company, located for the past five years at 229 Central Avenue, Albany, N. Y., has moved to larger quarters at 298 Central Avenue.

Dale Wiley has opened an electric business on West Market Street, Rockford, Ohio. He will do wiring, repair work and handle household appliances.

S. J. Maslowski has opened an electrical store at 159 Willow Street, Wilkes-Barre, Pa.

L. M. Roberts Electric Shop, 321 West Washington Street, Phoenix, Arizona, was damaged recently by fire. Considerable damage was done to the stock of wire in the building and to the repair shop in the rear.

Thompson Electric Company has moved to larger quarters at 406 Frisco Street, Clinton, Iowa.

Jasper County Electric Company, Newton, Iowa, is now occupying new quarters at 210 First Avenue East. Electrical contracting and lighting fixtures will be the main activities.

New Electragists

The following contractor-dealers have made application and been accepted into the A. E. I. since the publication of the last list in the June issue:

ALABAMA

Birmingham:

Braun's Lighthouse
Electrical Engrg. Co.
Chas. Lamar
Walker Elec. Co.
Whisler Elec. Co.

Bessemer:

Neal Elec. Co.

Ensley:

J. R. Boggs

CALIFORNIA

Fresno:

Independent Elec. Co.

Palo Alto:

Acme Elec. Co.

San Rafael:

Hess Electric
North Bay Elec. Works

Santa Rosa:

Mundell Elec. Co.

Sebastopol:

W. D. Callahan

ILLINOIS

Chicago:

C. G. Rush & Co.

INDIANA

Gary:

Glen Park Elec. Shop

IOWA

Council Bluffs:

Filer Elec. Co.
Wack-Flynn Elec. Co.

Mason City:

H. W. Johnson

Sioux City:

The Harper Abbett Elec.
Co.
Morningside Electric

KANSAS

Abilene:

G. E. Goodell & Sons

Atchison:

Bert Gilmore Elec. Co.
Low & Blythe Elec. Co.
Marshall Elec. Co.

Chanute:

C-R Elec. Co.

El Dorado:

Craiglow Elec. Co.

Emporia:

Krueger Bros.
Schottler Elec. Co.

Hutchinson:

Ramsay-King Elec. Co.

Kansas City:

Kaw Elec. Co.

Lawrence:

Graeber Bros.
Kennedy Plbg. Co.
Olson Bros.
C. B. Pettibone
F. Rahskopf
Shimmons Bros.

McPherson:

Green Elec. Shop

Manhattan:

Steele Elec. Co.

Pittsburg:

Walker Elec. Co.

Topeka:

College Hill Elec. Co.
Johnson Elec. Co.
Jordan Elec. Co.
Machinists Elec. Co.
E. L. Overton Elec. Co.

Shrake Elec. Co.

A. Tucker Elec. Co.

Wichita:

DeBruce Elec. Co.
W. E. French Elec. Co.
Kansas Gas & Elec. Co.
(Assoc.)
Murdock Elec. Co.
Shelley Elec. Co.
Shuher Elec. Co.
Southwestern Elec. Co.
United Elec. Co.
(Assoc.)

Winfield:

Osage Elec. Co.

KENTUCKY

Dayton:

J. M. Arnold

Fort Thomas:

Moorman Elec. Co.

Louisville:

Mudd & Young Elec. Co.

MARYLAND

Baltimore:

S. N. Greig

MINNESOTA

St. Paul:

Donovan Construction
Co.

NEW JERSEY

Bayonne:

The John R. Proctor
Co., Inc.

JAPAN

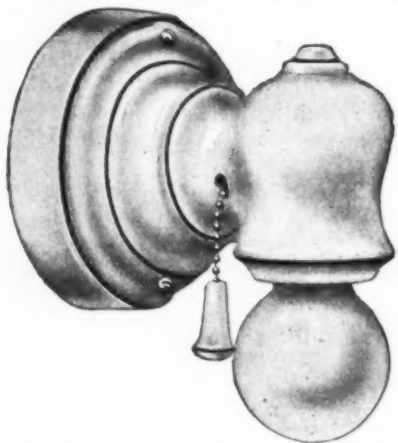
Nagoya:

Seiji Okabe, c-o Toho
Elec. Power Co.

News of the Manufacturers

Porcelain Fixture

Porcelier Manufacturing Company, 1026 Fifth Avenue, Pittsburgh, Pa., has brought out a porcelain wall bracket designed especially for use in residence bathrooms, hotels,



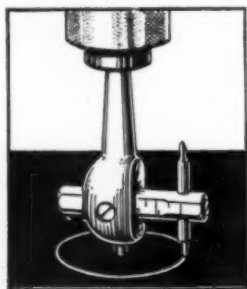
barber shops, restaurants, hospitals, etc. It is said to be practically indestructible and will retain the glaze indefinitely. It is available in white with black, blue and green striping, and is known as No. 726.

Bank Alarm

A. C. Breuckman, 314 Keyser Building, Baltimore, Md., has placed on the market a bank alarm system that is said to afford positive and complete protection to any financial institution in guarding against holdups. A signal rail is placed along the entire run of tellers' cages and a slight movement of the foot in case of trouble starts an alarm inside and outside of the building. The new system is said to be tamper-proof and cannot be shut off in advance without ringing the alarm bells. It can be installed without disturbing the routine of the bank.

Adjustable Cutter

Paul W. Koch & Co., 19 South Wells Street, Chicago, announce the addition of an adjustable cutter to their line of labor-saving equipment which are marketed under the trade name "Jiffy." The cutter has a calibrated arm which permits the knife to be set accu-



ately and easily on any diameter from one inch to three inches. It is for operation in a standard brace and will cut holes in sheet

metal, outlet boxes, switchboards, bakelite and other light materials. Adjustments are made with a screw driver. A special knockout attachment makes it possible to enlarge a 1/2-in. or 3/4-in. knockout to any size up to three inches. The cutter weighs but eight ounces.

Conduit Fitting

Killark Electric Manufacturing Company, 3940 Easton Avenue, St. Louis, Mo., has brought out an entrance fitting which is used to make a right angle bend in service en-



trance conduit on the outside of a building. It is weather-proof and a rubber gasket has been placed between the fitting and the cover. The fitting is made of a special grade of tough grey iron, and the finish is either black japan or galvanized. The cover is cast metal and is held in place by two screws.

Bedlights

The F. W. Wakefield Brass Company, Vermillion, Ohio, has brought out two more bedlights in its line of hotel and hospital specialties. One, the upper illustration, is for permanent installation and is designed for use with a tubular lamp. The unit is made of



heavy gauge brass and steel tubing. It is finished in egg shell bronze. The gooseneck light, pictured below, is provided with a padded clamp and can be fitted to any size or form of bed rail or molding. The gooseneck is of fluted tubing and is attached to the clamp by a ball-and-socket joint which permits a variety of adjustments. The deep cone shade shields the source of light, making it especially adaptable to hospital beds.

Pipe Cutter

Toledo Pipe Threading Machine Company, Toledo, Ohio, has placed on the market a pipe cutter for cutting 2-in. to 4-in. pipe that is said to cut smoothly and to leave no inside



burr. The knives are fed automatically, according to the manufacturer, requiring no attention on the part of the operator. A single hand wheel sets them for cutting and the quick return of the knives after the pipe is cut. There is but one jaw to center the tool on the pipe and this holds the tool rigid. The new cutter weighs 65 pounds and is said to be simple and easy to operate.

Wall Fixture Box

Adell Manufacturing Company, Orange, Mass., has placed on the market a box designed especially for wall brackets which is claimed to be a labor saver in fixture hanging. The box is shallow, rigid and adjustable, and can be placed at any height desired. Knockouts in the corner make connection with the cable easy from whatever direction it may come, horizontal or vertical. Upright screws facilitate the tightening of the armored cable or loom.

Manufacturing Notes

Crouse-Hinds Company, Syracuse, N. Y., has issued a broadside in colors showing the method of installing the company's new "Ob-round" condulets.

B. B. T. Corporation of America, Atlantic Building, Philadelphia, Pa., recently issued a 16-page book entitled "A New Principle in Floodlighting." It is illustrated throughout and contains much engineering data relating to floodlighting.

The Master Electric Company, Linden and Master Avenues, Dayton, Ohio, has issued a folder containing complete information about its line of motors. It is known as Form 364.